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THE CANADIAN HORTICULTURIST

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The Canadian Horticulturist

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The Value of Books to the Fruit Grower*

A. Bonar Balfour, Pilrig Fruit Farm, Port Dalhousie

PRESIDENT Taft in his address before the National Conservation Congress at Kansas City, Mo., said of farming that "It is now almost a learned profession," and designated it as "the profession of farming." This shows that what a few years ago was thought good enough only for the mentally dull or inefficient members of the family has come to the front with attraction sufficient to interest the most proficient members of society. In all probability, in a few years' time, it will take the foremost rank of all occupations whereby man has to earn his living and make a competence. The production of food for a growing population has become a vital question.

Modern methods of rapid and easy transit and with a still more rapid communication has broken down the isolation of the farm. Modern machinery has robbed it of much of the drudgery, so that now the farm is no longer the abode of brawn, but of brain, and the greater endowed the brain the greater the profits, and accordingly the higher the standards of living. It is said of us in our youth that we go to school not so much to learn as to learn how to learn. That is, the brain is trained into lines of thought—the greater the efficiency of the thought the better direction should be given our labors, and consequent greater profits result.

DIFFERENT CONDITIONS

When the writer was in California, he met a young Englishman of a progressive turn of mind. He told me that in England you have to keep within your own boundaries, while in California things were different—you could go over the fence and see what your neighbor was doing. Indeed, he said, it is your duty to do so, and whatever you find he is doing better than you can do, you are expected to adopt it and work it into your own scheme of affairs. Unfortunately some of our neighbors live too far off for us to see what they are doing, but thanks to the press there is permitted us an intercommunication by means of books and periodicals.

Books that are of interest to the fruit grower in helping him in the promotion of his business for the most part treat only on one branch or phase of that business. They are written by one who in all probability has devoted the greater part of his life to the study of that one subject and not only represents years of labor, but also the expenditure of much money in the pursuit of the knowledge of the subject they represent and you owe it as a duty to yourself to study such books as are in direct line with your life work—the work by which you earn a livelihood for yourself and family and on success in which depends the quality of your comforts. Books present to you the viewpoints of others, a study of these may modify or round out your own, may increase your accomplishments and heighten your efficiency, and thereby cultivate and develop your mental and physical powers, awaken your latent energies, and open to you a new and wider horizon.

Thus it is that the fruit growing profession is elevated to the plane of the learned profession. The growing of fruits and intensive cultivation demands intensive thought—correct lines of thought are only promoted through the study of

A catalogue of books bearing on horticultural subjects and fertilizers may be obtained free on application to The Horticultural Publishing Co., Ltd., Peterboro, Ont.

A Portion of the Apple Show, Held Last Fall, at Summerland, B.C. The Artistic Displays are Shown on the Left and the Boxed Apples on the Right

A Four Acre Raspberry Patch, that Produced over 9,000 Boxes of Berries

The bushes in this raspberry patch, owned by Grover C. Murdoch, of Simcoe, Ont., were two years old last season, and produced almost $1,000 worth of fruit. The rows are seven feet apart, and the bushes two feet apart in the row.

the subject and of those that influence or bear on that subject. We now have not only books on every phase of fruit-growing, but also on varying viewpoints of each phase. Thus we have several books on "The Soil," a combination of which sifted through our own experience gives us a wider knowledge of the principles of soil management. Formerly changes in the soil were supposed to be due to chemical action; now we know that they are largely influenced by those living organisms in the soil termed bacteria. Bacteria do not all work for our good; hence it is to our interest to study these so that we may encourage those that are beneficial by such action as lies in our power to this end, and to neutralize or destroy such that are detrimental to our interests, and a very good book on this subect may be found in Lipman's most excellent work entitled "Bacteria in relation to Country Life." Then we have books on fertilizers which tell us of their history, source and action, and how they may be used to advantage. A study of plant physiology teaches us the behavior and response of plants under our conditions, and our progress rests largely with an intimate knowledge of the relation of the growth of the plant to the condition under which it is grown.

The fruit grower must ever bear in mind that it is only through a complete comprehensiveness of all of the natural forces tending to his weal or woe that he can hope to attain that larger success for which we all strive. Emerson says in his "Essays" that "there is no limit to the chapter of our resources. We have keys to all doors"—primarily our success rests with each individually. We must gather in the knowledge that others have attained, sift it through our own experience, and by test select that which is to benefit us and apply it to our own individual affairs as circumstances permit.

In conclusion, let me say that we should do no action blindly. If it is pruning we should study the why and wherefore and remove no limb without a definite aim in view—the same rule should bind us in all our work. Then, though success is primarily attained through the individual effort, we must not forget the collective effort—cooperation. In cooperation we organize our buying and selling to our own good and the general welfare of the community.

A Profitable Raspberry Patch

G. C. Murdoch, Simcoe, Ont.

From four acres of red raspberries last season I sold almost one thousand dollars' worth of fruit. The bushes were set out in the spring of 1910 in rows seven feet and nine feet apart alternately and twenty inches apart in the row. In a large patch this is an advantage when getting out the old wood, as a team and wagon can be driven down the nine foot rows and have the brush thrown on from the seven foot rows.

The bushes were hoed and cultivated the first summer and made a fine growth before fall. In August the bushes were cut back to two feet and in October the bushes were strong and the canes large and they wintered well.

In the spring of 1911 the ground was hoed and cultivated and kept clean all summer. In spite of the severe drought of that season we picked four thousand eight hundred baskets from the patch. The old wood was removed as soon as the crop was off and the new canes cut back to about two and a half feet and not over four canes left in a hill, three was the average.

Last spring they were hoed and cultivated, and during the dry spell of June they were cultivated twice a week. We took nine thousand baskets from them last season, and in August took the old wood out and cut the plants back as usual.

I believe in taking the wood out as soon as possible after the crop is off. It gives the new bushes a chance to form thick canes that will bear the weight of heavy snow and it also removes insects and borers that are working on the old canes before these have a chance to attack the new wood. Next spring, and yearly thereafter, these bushes will receive a liberal dressing of barnyard manure. As they were set on rich ground they have not needed it yet. We did not cultivate them again last fall, as we wanted all the new shoots that came up between the rows for new plants next spring, as we intend to set out ten acres of them next season.

Tile Draining in Winter

Joseph Tweddle, Stoney Creek, Ont.

Tile draining is the one thing most needed on the average Canadian farm, but the great shortage of labor leaves no possible chance to attend to this work except in winter. It does not appear to have occurred to the average farmer that it is possible to do this work in winter, but as a result of careful study, I have been able to continue the work till mid-winter and find it possible under ordinary circumstances, to operate throughout the entire winter.

It has been our practice to lay out the drains and plough out a deep double furrow before winter sets in. Having the surface well drained I proceed to protect the drain from freezing by covering it with a little coarse manure, of which a good load will protect a long stretch of ditch. This class of work, owing to the vigorous exercise, is not uncomfortable in moderately cold weather. It is very healthy and provides work for the winter months thus enabling the farmer to keep a better class of labor.

A good strong sub-soil plough is used after the ditch has been opened. It stirs up the subsoil to a depth of ten or twelve inches. This is done by going two or three rounds with a good steady team, using a six or eight foot double tree, which makes it safe for the horses, and prevents damage to the ditch. This provides for the use of unskilled labor under the farmer's superintendence in shovelling out the loose earth. Repeat the sub-soiling and shoveling until the desired depth is secured. This makes a very cheap method of carrying out the work.

I have succeeded in cutting four and a half feet deep by lengthening the chain from the horses to the plough making a ditch not over eighteen inches wide at the surface and four to six inches at the bottom. This has been done in the very

hardest of dry clay and only nine inches wide at the surface, where two and a half feet in depth was required. This method moves the minimum of earth and gives plenty of room for laying the tile. The same method applies to filling the ditch. Most beginners make the mistake of making too wide a ditch. This entails double labor both in digging and filling.

Commercial Fertilizers--A Reply to Criticisms

J. B. Dandeno, Ph. D., (Harv.), Bowmanville

Permit me to reply to criticisms in the December issue of The Canadian Horticulturist, on my communication relative to commercial fertilizers, which appeared in The Canadian Horticulturist for November. Mr. Emslie, of the German Potash Syndicate, opposes my argument and I take exception to his statements. He states that I cling to "old and discredited theories." My assertions on fertilizers are the result of thirteen years of research work on "soils and plants," after eight years of university training for the work. My conclusions have matured within the last six years and are based upon experimental research, chiefly in the Michigan Agricultural College. The views are discredited, I think, only by those unacquainted with the details.

Mr. Emslie defines plant food thus: "We only know that plants draw on the soil for certain substances entering into their composition." From this we must include copper as a food, because it is found in many plants, notably wheat. But copper is a poison except in the most minute quantities. The plant would be better without it. The copper is taken in by a physical action purely. The definition fails because it includes what is clearly not a food.

Take Mr. Fox's definition: "Plant food is any substance that is worked into the soil that will cause it to produce a better crop." Now, oxygen will, under these conditions, produce a better crop, and yet it does not enter the plant at all. So will several other substances acting as catalysers. These could hardly be called foods since they do not enter the plant. A whip might make a horse do more work, but surely a whip is not an animal food. A curry-comb may cause a steer to put on more beef, but a curry-comb is not a stock food. Yet this is the logical conclusion from that definition.

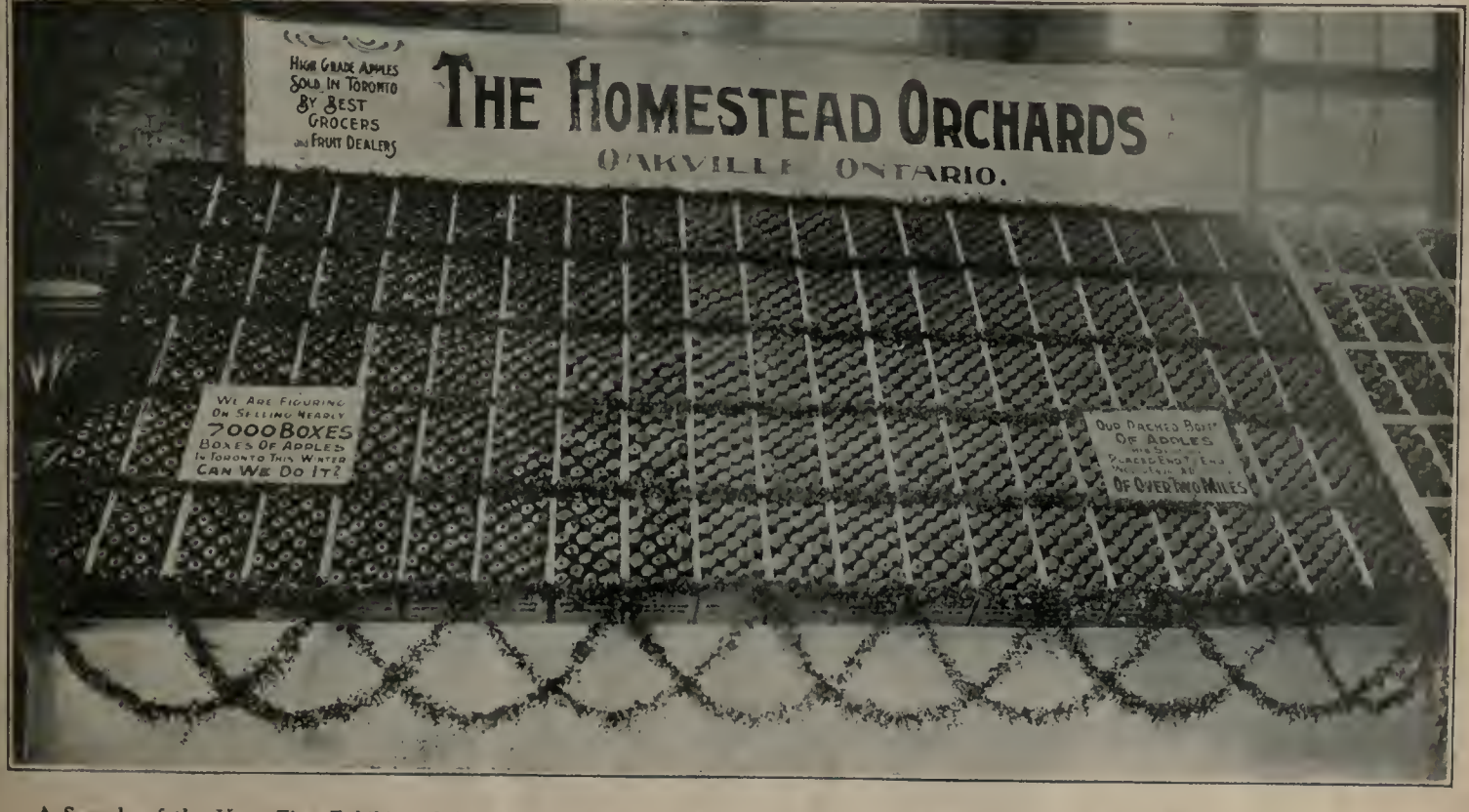
CASES DISSIMILAR

Dr. Emslie says: "Dr. Dandeno might state with equal aptitude that the food which we eat does not nourish our bodies." Not at all, these cases are not parallel. We are nourished entirely differently from any Chlorophyll-bearing plant. There is no comparison, because the plant organizes it own "food" and the animal consumes what has been organized. Unless we assume a fungus plant, there is no comparison, and even then I disclaim connection with "we."

That more than half the money spent in artificial fertilizers is wasted is very plain to those familiar with the problem. Here is a fact supporting this estimate. In the Geneva, N. Y., Experiment Station an experiment now going on eleven years continuously with an apple orchard, shows these results, quoting from Bul. 339, p. 188, 1911:—"The final conclusion must be that the trees in this experiment would be practically as well off in every respect had not an ounce of fertilizer been used." Four types of fertilizers were tested, and this experiment is the most reliable in America.

Mr. Emslie says further: "The majority of fertilizers are of mineral origin." At a glance one can see that that is not a fair statement. Here are the fertilizers in common use: Bone meal, dried blood, guano, fish products, slaughter house products, cotton seed, night soil, sewer sludge—all organic. Even wood ashes and nitrate of soda are of organic origin. The chief mineral fertilizers are phosphates and potassium compounds. But an average soil will contain enough phosphates to last for two hundred and fifty years, and enough potassium to last for a thousand years. These are not necessarily all *available* at once.

As to Mr. Fox's challenge, I grant him at once. The manure would likely produce an increased crop and the pock-



A Sample of the Very Fine Exhibits of Apples put up by Private Concerns at the recent Ontario Horticultural Exhibition in Toronto

A Class in Box Packing at the Oka Agricultural Institute, La Trappe, Que.

This institute is a leader in horticultural education in the province of Quebec. The Three-Two Diagonal pack is here being used. Rev. Father Leopold is the second figure on the left. He has recently been elected president of the Province of Quebec Fruit Growers' Society.

etful of "food" no increase. The manure is of value not because of any "food" it contains. He misunderstands my argument.

When Mr. Emslie becomes personal and refers to "his own prescriptions," he is even here also in error. I am not a physician. I am simply a specialist in plant diseases and in soil fertility. His reference to soil constituents as "hash" is no argument. It is disposing of the question as an orchardist does who, when he wishes to rid his orchard of insect pests, goes into the orchard and says "shoo." To compare fertilizers to a "dose of salts" is far too flattering to the fertilizers.

In conclusion let me thank the editor for this space, and say that the plant must answer. The plant is the chemist who must pronounce upon the value of a fertilizer.

Fertilizer for the Orchard

DR. J. P. Stewart, Experimental Pomologist of the Pennsylvania Experiment Station at State College, Pa., discussed the use of fertilization and cultural methods in apple production at the recent convention in Toronto of the Ontario Fruit Growers' Association. His deductions were based on six years' work in ten experiments located in the leading apple sections of Pennsylvania and involving ten different soil types and two thousand two hundred and nineteen trees. The trees range from ten to forty years of age, and have produced over one million seven hundred thousand pounds of fruit since the work started.

These experiments have shown: First, that in some orchards the yield can be greatly influenced by proper fertilization, the most important elements of which have been nitrogen and phosphates. With all other conditions uniform, the gains from such fertilization have run as high as seventeen times the amounts of fruit produced on the adjacent checks or untreated plots and net profits have been as great as four hundred and twenty dollars an acre in a single season. Under these conditions, tillage and cover crops have not been the equivalent of fertilization. The gains from the former have averaged about one hundred bushels per acre annually, while the latter, without cultivation, was giving four hundred and fifty-two bushels a year.

Second: The absence of nitrogen, as a rule, applications of phosphates and potash have not been profitable. On some soils, and in the presence of sufficient nitrogen, however, moderate amounts of these minerals are often profitable. Neither has had any material influence on color. On size, the influence of potash has been favorable.

Third: Nitrogen has had greater influence in increasing yield than any other element. It also has materially decreased color. This is due primarily to delay in maturity, and may be overcome by later picking, which is advantageous in Pennsylvania with such varieties as Baldwin. The delay on it in one locality in 1911 was three weeks.

Fourth: Contrary to a prevalent notion, growth and fruiting are not antagonistic, unless either occurs in abnormal amount. The best growing plots, as a rule, have been the best fruiting plots.

Fifth: Manure has usually proved profitable, doubtless essentially because of its nitrogen content. In most of the cases where it has proved beneficial, however, its net profits have been approached or surpassed by certain combinations of artificial fertilizers.

Sixth: In a few orchards no form of fertilization has yet produced a material response. This is considered to be due to the presence of other limiters, of which improper moisture supply is frequently important. The existence of such orchards emphasizes the need of local tests before making large and regular expenditures for fertilizers. Simple methods of making these tests and a good general formula for preliminary use were indicated.

Seventh: In the long run, any orchard that is actively producing and growing is likely to require fertilization, since the total plant food draft of such an orchard is quite heavy—more per acre for every constituent except phosphorus than is required by a twenty-five bushel crop of wheat.

CONTROLLING THE COLOR

Eighth: Color in apples is essentially dependent on maturity and sunlight. Conditions increasing one or both of these factors such as late picking, light soils, open pruning, and sod culture increase color. Opposite conditions decrease it. Iron applications to the soil have not been shown to improve the color.

Ninth: The average size of apples is governed primarily by the number of fruits on the tree, after the number has passed a certain "critical point." This point is relatively high, the data showing that, even on trees up to fifteen years of age, little or no correlation appeared until the number of fruits reached one thousand four hundred or more per tree. Below the critical point, size can be markedly affected by moisture supply, cultural methods, manures, and fertilizers—especially those rich in potash; and these factors may also cooperate in such a way as to materially raise the critical point.

Ordinary concentrated lime-sulphur has not given as good results in destroying the oyster shell bark louse as the old home-boiled mixture containing more lime made by boiling twenty pounds of lime and fifteen pounds of sulphur in forty gallons of water. The poor results obtained are due to the lack of free lime. The lime acts in the gelutineous matter of the scale, loosening it, and allowing the caustic lime-sulphur to enter and kill the insect. For best results in destroying this insect mix from five to eight pounds of lime with each barrel of lime-sulphur as diluted for application.—W. T. Macoun, Horticulturist, C.E.F., Ottawa.

A Small Garden Where Bold Effects Are Produced

F. E. Buck, B. S. A., Experimental Farm, Ottawa

A GARDEN in a city lot about one hundred and twenty by sixty feet, where flowers are grown in profusion almost every month of the season, and where all the work is done by the owner, should have interest for every city dweller. When it is considered that on a lot of this size the owner, Mr. J. A. Ellis, M.L.A., 131 Stanley street, Ottawa, manages to grow enough peonies so that he can cut as many as one thousand to twelve hundred blooms at one time, the interest must certainly increase in the "Hows" and "Whys" of such profusion.

Don't conclude off hand that peonies occupy all the space devoted to flowers. If you visit this garden in July or September, as I did, you will be scarcely conscious of the real number of peony plants which it contains. And one of the reasons is due to that charming effect of the Coral-bells which so insistently demand our attention just in front of the foliage of the peonies, a foliage which is delightful as a background to the scarlet spikes of this little Siberian plant. Later in the summer again peony foliage serves as the base to give contrast to the scarlet tiger lilies which rise out from it as if they owned the whole border and were trying to make their beholders blind to the fact that they were but symbionts in the possession of this border with the peonies. And so we have the peonies not only beautiful in their glory of bloom but serviceable also later on in the ways just mentioned. Delightful as the effects are which Mr. Ellis produces by a well regulated system of inter and double planting of his borders they must be passed without further comment or space will not be available to emphasize several other special features of this city lot.

THE PROBLEM OF EACH GARDEN

In most parts of the world, each home, each city lot in particular, presents in many cases a distinct problem to its owner when he begins to plant it with a view of making his home a "real home" and one of the best lots of his neighborhood. In the very beginning of his gardening career Mr. Ellis realized that the problem which his lot presented was a personal one. While not by any means unique it was not a common problem, and still less a desirable one.

The problem simply stated was pratically just such a one as any one of the readers of The Canadian Horticulturist may be facing. Therefore, let us put it thus:—You wish to grow flowers, to do all the work of gardening yourself, to have the place always looking nice, and to have the best of things growing in the most luxuriant manner; but down one side of your lot is an ugly board fence, and a bare shed belonging to your neighbor. You cannot plant vines to cover it because he does not wish you to do that, you cannot plant trees to screen it because your lot is not large enough to grow both trees and flowers, and yet you must hide that eyesore and achieve your desires. What are you going to do about it? This is not all the problem, but enough to show the point. What did Mr. Ellis do?

We can only partly answer the question. Mr. Ellis, having determined upon the policy of having the maximum quantity of flowers with a minimum amount of work (not because he disliked the work, but because he is city treasurer, a member of the Ontario Legislature, and a very busy man), together with the production of a nice effective lot when viewed from the street, found that he had to work out his own method of screening that objectionable board fence and building. This we shall come to

Artistic Effect and Utility are Combined in This Rustic Arrangement

Notice the wealth of bloom obtained by Mr. Ellis from the plants of Clematis Jackmanii. The necessary but rather ugly outhouse is made a pleasing feature in this garden. The little conservatory on the left is the one in which Mr. Ellis has had distinct success growing orchids as described by him in recent issues of The Canadian Horticulturist.

This Illustration shows how Mr. Ellis is Succeeding in Solving the Ugly Fence Problem

The grafted varieties of lilac and other shrubs here used do not rob the flowers in the borders of the moisture and plant food as many shrubs or trees would do.

later. He found that the first part of his problem was solved by making a twelve foot border around three sides of his lot. This he planted with perennials. This system left a nice piece of greensward in the centre which looked well from both the house and the street. It has been suggested already how by a skilful system of double planting and by restricting his efforts to certain flower groups he secures abundance of bloom. Now it should be stated that the flowers of his choice are generally those vigorous kinds which will reward a little labor with fragrance and color in almost any kind of a season.

A SIMPLE SOLUTION

The solution of the next part of the problem sounds simple enough. If you look at the illustration above, you will notice that shrubs are used at the back of the border on the west side of the lot. These were planted to form the screen to hide the board wall. Already they are nearly tall enough to do this. Suggesting that shrubs be used for this purpose was easy. To find varieties that would grow high enough for this purpose without encroaching on the room of the flowers, and robbing them of food, moisture and light, was more difficult. And to work in kinds that would give bloom at different seasons, so as to add to the charm of the border was less easy still. However, Mr. Ellis found what he wanted, and the effect has been pleasing ever since.

A similar problem to that just mentioned, presented itself in connection with the rear of the house. The illustration on page five shows how a rather unsightly outhouse was screened and the whole of the rear of the house made to offer both convenience and charm during many months of the year by the addition of a rustic pergola. The pergola Mr. Ellis made himself from cedar poles and when the several plants of Clematis Jackmanii, which are now growing on it, are in full bloom the picture is as pleasing as one could well imagine. Roses and other vines are also grown on this pergola.

It will be seen then that the solutions of these problems were definite, simple and effective, and it should be added that they were inexpensive also. The cost of the materials which Mr. Ellis has used has been low because he has adopted a system of replenishing his borders which is worth recording. It was mentioned that only perennials were found in this garden. In the case of such perennials as the Delphiniums or Poppies, he will collect the seed from a plant as soon as it ripens, or he may take the seed of something new, for he believes in having the best of everything, and this seed he will drop near some old plant that he intends pulling out next year or in some little vacant spot in the shade of other plants. By giving the seedlings, as they come up, a little watching and judicious thinning out he will have a nice clump of new plants in bloom there the next year. And the work has been practically nil. He replenishes his borders by using in part Nature's own method. Of course not all seeds can be treated in this way but nearly all that he sows can. And it will be interesting to know what plants Mr. Ellis finds most useful in a garden of this character.

THE VARIETIES GROWN

The German Iris he has found to be very effective for spring effects. He groups them in masses at the ends and in the corners of his borders. Of these he has about fifty varieties, and his object for some years has been to eliminate from his collection the dull shades of purplish-blue. This makes the spring effect much more sparkling and effective.

Following the irises the peonies hold sway in the garden for nearly a month, and at that season the garden is a splendid sight from the street.

Mr. Ellis believes in letting the public share in the joys of his flowers to an extent, that is,"a vista to the public should be allowed by each possessor of a good lot," such a lot has an educational value, and it is but neighborly to share it with all so long as enough privacy is retained to make it "home."

Such flowers as the platycodons, Chinese Bell-flowers), pyrethrums (Spring Marguerites), gaillardias (Blanket flowers), delphhiniums (Tall Larkspurs), hemerocallis (Day Lilies), dwarf or Chinese Larkspurs, and sweet williams, give color to the borders until the time of the perennial phloxes, which form fine strong groups of color in this garden.

Other flowers, like the herbaceous spiræas, coreopsis, Helianthus multiflorus, and golden glow, do well at the back of the border, while that charming little free flowering plant, the Iceland Poppy (Papavera nudicaule), together with Achillea Funkias, and others, add charm to specialized parts of the border.

Cannas, which of course must be treated as annuals, are grown to good effect by the wall of the house where they get some protection from the first frosts of the fall and thereby continue their bloom much later. Darwin and cottage tulips are grown in the same bed for spring effects, and as a background Hydrangea paniculata are used.

Of new varieties of his chosen plants, Mr. Ellis imports and buys quite a few. Three of his best peonies are Asa Gray, Festiva Maxima and Mons. Jules Elie.

Color harmonies have been worked for in some measure by Mr. Ellis, and he states that he likes to get his strong colors as a rule at the back of the border.

Continuity of Bloom in Small Gardens*

W. T. Macoun, Dominion Horticulturist, Ottawa, Ont.

THE seasons when it is most difficult to have good bloom is just after the bulb season in the spring and during the month of September. Hence we shall suggest more plants for spring and autumn, than for summer.

One of the earliest blooming perennials is Arabis alpina flore pleno, or Double-flowered Alyssum. This begins to bloom soon after the snow has gone. Its double, pure white flowers are borne in great profusion. It is low growing, increases rapidly, and is very useful for the front of the border.

No small garden is complete without a good plant of Bleeding Heart. It has a blooming season of a month or more in the latter part of May and June, and is both striking and attractive.

The Epimediums, or Barrenworts, are very attractive spring flowering perennials, and are desirable for cutting. The varieties of Trollius, or Globe flower, in various shades of yellow and orange are among the best spring flowering plants, and the native Trillium grandiflorum should be in every small garden. It thrives well under cultivation and clumps soon spread.

*Extract from a paper read at the recent convention in Toronto of the Ontario Horticultural Association. Continued from last issue.

Yucca Filamentosa

This plant stands about five feet six inches high. It is just a young plant and will spread out considerably as it gets older. It is a very striking and rather pretty plant. This specimen is hardly at its best yet as only a few of the flowers are fully opened. It was photographed by a representative of The Canadian Horticulturist in the grounds of the Canadian Nursery Company, of Montreal.

Lily of the Valley and Forget-Me-Not are delightful spring flowering plants, but each needs a place of its own: The former because its blooming season is short and it spreads rapidly, and the latter because it becomes a weed in the border.

Iris florentina blooms in May, and because of its early blooming it should not be omitted; the many varieties of German Iris soon follow.

The Day Lily, Hemerocallis flava, is an attractive yellow-flowered plant, and i s fine foliage makes it useful as a background for other species.

SUMMER PLANTS.

Among summer-blooming plants there is none more desirable than perennial phlox, of which there are many fine varieties. Among low growing plants for bloom in late summer we have found that Rudbeckia Newmanni, a sort of Black-eyed Susan, is one of the most desirable. It increases rapidly and clumps should be scattered all along the front or near the front of the border.

No lilies have been mentioned so far. They are not as necessary as some other flowers, and anyone who wants lilies will get them anyway, but Lilium speciosum is, we believe, an absolute necessity in a small garden where continuity of bloom is desired. It flowers during the month of September when bloom is scarce. Japanese Anemones are also desirable for late bloom, but as the first frost injures these and they do not bloom until very late, they are not to be depended upon. There are many tall growing yellow flowers, such as Rudbeckia Golden Glow, Helianthus of various species, and Heliopsis with running root stalks, but all of these should be kept out of the mixed border as they give endless work in keeping them under control. If they are used they should be treated as things apart. There are, however, some good late blooming flowers which do not spread in this way or at least not rapidly. Among these are Helianthus multiflorus maximus, Helianthus Soleil d'or, Helenium autumnale superbum, Helenium grandicephalum striatum, and some of the finest autumn flowering plants are among the Michaelmas daisies or asters, and of these we have found that Aster Novae Angliae, Mrs. Rayner, a reddish purple flowered variety is one of the best.

In a border where continuity of bloom is desired all the tall plants should not be put at the very back. The late blooming sorts are most of them tall, and if they are all kept in the rear there is a dearth of bloom near the front in late summer or autumn unless annuals are used, most of which do not go well with perennials.

A Seven Year Old Brughmahsia

This plant, grown by Miss Cox, of Stratford, stands over six feet from the ground, although it was severely pruned last spring. When photographed it had between thirty and forty buds and blossoms. The full bloom is nearly a foot long and about six inches across and of an ivory whiteness. It blooms in September, and the blossoms open to their full extent in the evening.

It will be noticed that peonies have not yet been mentioned, but peonies should, in a small garden, be planted by themselves. They take up too much room in a mixed border and are apt to smother smaller and more precious things. A peony-bed should not have too prominent a place in a small garden, as when the blooming season is over it is too conspicuous an object and not sufficiently attractive. If planted near a fence or wall provided they have abundant sunlight, good soil, and sufficient moisture they will look well when in bloom and will relieve the hard lines of the fence afterwards.

A border of narcissus or pansies along the front will give color to the bed before the poenies bloom, and gladioli may be used with good effect behind for later bloom. Gladioli are also very desirable in the mixed border, and if some are planted late will be particularly useful in September when bloom is scarce.

Annuals should play some part in a small garden and until perennials are well established more of them are likely to be used than later on. Sweet peas, asters, nasturtiums, scarlet salvia, phlox drummondi, verbena, and white and pink petunias are my favorite annuals, and are among the most persistent bloomers. Sweet peas should be planted so that they will not be too conspicuous in late summer when the lower leaves have fallen and they have a ragged look. It may be possible to screen the lower part of the sweet pea row with some other flower planted two feet or more from the sweet peas but which from a distance appear close to them. Beds of annuals usually become ragged in late summer in Ontario, hence a border of annuals where they will not be so conspicuous would seem to me best.

Every year some re-arrangement of some of the planting in a small garden will need to be made in order to have that continuity of bloom, freedom from gaps and blending of foliage and flower which is so necessary in a small garden where all one's attempts may be taken in at a glance and where weak spots are quickly seen.

Best Varieties of Sweet Peas*

Thomas D. Dockray, Toronto, Ont.

THE superiority of the Spencer varieties of sweet peas is admitted on all sides. Just about all shades of the older grandiflora type may be obtained among the new ruffled varieties.

Among the pure whites, Etta Dyke Spencer is the best, excelling Dorothy Eckford in waviness, but both have very large flowers, usually four on a long stem under good treatment. Florence Wright and Nora Unwin are also good whites. Mrs. Collier is a warm white, almost cream, but unruffled.

The best and clearest buff yellow is Clara Curtis Spencer. Other good buffs are Lady Knox and Mrs. A. Malcolm, but both may incline to a fawn shade on the standards.

Mrs. Routzahn Spencer is the best cream pink. Like it are said to be Romani Rauni and Mrs. Hugh Dickson. Constance Oliver is also good. Paradise Ivory is a most delicate cream with just a suspicion of rose, but it does not seem to expand fully in Toronto.

Elsie Herbert Spencer is the best white with a pink edge, having very large flowers, but Picotee Spencer gives a large percentage of stalks with four well-spaced blossoms. Dainty, when not ruffled, has the pink edge beautifully defined.

For a cream with a pink edge, the choice would fall upon Mrs. C. W. Breadmore or Evelyn Hemus, both Spencers and practically identical. Dora Breadmore has a pink edge, but is slightly hooded and the cream becomes fawn as the season advances.

Countess Spencer, the type of the ruffled hybrids, is still unexcelled as a pink. Marjorie Willis, Marie Corelli, or Gladys Unwin, rosy pinks; Mrs. Hardcastle Sykes or Elfrida Pearson, blush pinks; Mrs. R. Hallam or Miriam Beaver, deep cream pinks, are all most desirable in this popular color.

The great fault of the orange sweet peas is that they are apt to burn in the sun. The best are Helen Lewis, an orange pink, and Thomas Stevenson, an orange scarlet, both Spencers, and very vigorous. Other good Orange Spencers are Edna Unwin Improved, Dazzler, St. George and Anglian Orange. A new unruffled variety, said to be nearly a true orange color and almost sunproof, is Orange King. Because they burn so badly, Henry Eckford and Agnes Johnson should not be grown here.

At least one scarlet has been produced that will stand the sun fairly well and that is Queen Alexandra, a fine large flower of the old, plain type. Doris Burt, George Stark, Scarlet Monarch and Scarlet Gem are not always sunproof, but are Spencers.

For a crimson, King Edward Spencer is the best, having displaced Salopian, just as Salopian displaced Coccinea. Sunproof Crimson and Maud Holmes are two splendid new varieties. Perhaps the purest ruby color is King Edward VII., a large flower, but not a Spencer. Of a good garnet color are Cherry Ripe (the Spencer form of Coccinea) and Chrissie Unwin. John Ingman, George Herbert and Mrs. William King, all practically alike, are fine rose magentas of the Spencer type. Rose du Barri is an odd-looking burnt pink.

The bronze, or maroon, section is not much in favor. The best here is Douglas Unwin. It is of a rich purple wine color and the surface of the flower almost suggests a pansy in its velvetiness. Black Knight Spencer, Othello Spencer, Nubian and Tom Bolton, all practically alike, are of chocolate or mahogany color and are shiny, thus running some risk of burning.

All the blues are apt to have a touch of pink or lilac somewhere on the blossom. The purest dark blue is Lord Nelson, not a Spencer. Flora Norton Spencer, the brightest blue, is not as large as Zephyr Spencer, a silvery blue. Horace Wright is a splendid indigo, but rarely produces more than two flowers on the stalk. Audrey Crier Spencer, May Malcolm Spencer and Lady Sarah Spencer are said to be new, deep blue varieties of enormous size.

The best mauve is Tennant Spencer. It seems to be the Spencer form of Mrs. Walter Wright.

Asta Ohn Spencer is the best lavender. Florence Nightingale and Masterpiece, both Spencers, are good. Nettie Jenkins is the best Spencer form of that old favorite, Lady Grizel Hamilton, and is slightly hooded. Mrs. Charles Foster is a good Spencer heliotrope. Phenomenal is a creamy white with a picotee edge of purple. This section would not be complete without the old Duke of Westminster, a striking combination of violet and purple, suggestive of the Cattleya orchid.

*In the December, 1911, issue of The Canadian Horticulturist appeared an article by Mr. Dockray, describing the culture of the sweet pea as a result of extensive tests of varieties conducted by him during the past season to check the results obtained in previous years. The list of varieties here given is recommended by Mr. Dockray with confidence.

Vines as Grown on one of the Verandahs at the rear of Government House, Ottawa

Spiraea Van Houttei Used as a Hedge

The hedge here shown is to be seen in the garden of R. C. Burns, Brantford, Ont., whose garden won first prize in a garden competition held in his part of the city last year. The trellis of climbing roses over the arch in the opening added much to the general effect. Such a hedge makes a good screen or division between a front and back lawn. The hedge shown is five years old.

The striped and flaked varieties are not much sought after. Helen Pierce is a pleasing mottled pale blue. Senator Spencer looks like a good thing gone wrong. Its color scheme consists of mahogany streaks on a dirty white ground. Prince Olaf is a good combination of purple and lavender and shows the marking well, as it is not ruffled. Aurora Spencer and America Spencer are both pleasing flaked varieties, the former an orange rose, the latter a rosy scarlet. The freakishness of Mariory Linzee is not in the color, which is pink, but in the form. It frequently has double standards, but does not seem any more desirable on that account.

For the person who can plant only a single row of ninety or one hundred feet, a packet of twenty seeds of each of the following twelve varieties will be found more than sufficient. One, white: Etta Dyke Spencer; two, buff: Clara Curtis Spencer; three, cream pink: Mrs. Routzahn Spencer; four, pink edged: Elsie Herbert Spencer; five, pink: Countess Spencer; six, orange: Helen Lewis; seven, scarlet: Queen Alexandra; eight, crimson: King Edward Spencer; nine, maroon: Douglas Unwin; ten, blue: Lord Nelson; eleven, lavender: Asta Ohn; twelve, purple edged: Phenomenal. If only four varieties can be grown it will be found that Etta Dyke Spencer, Countess Spencer, Queen Alexandra, and Asta Ohn will blend very well, either on the plants or when picked.

The Winter Care of Window Flowers

R. S. Rose, Peterboro, Ont.

THE watering of window plants is one of the most essential points to watch if bloom is required and if you want your plants to be healthy and to give satisfaction throughout the season. There is no set rule for watering. I can only say this: Do not water too often. Frequent watering is apt to bring on disease and to decay the root. Only water when the surface of the earth has a dry appearance. Give enough water to thoroughly saturate all the soil in the pot.

Three times a week is sufficiently frequent to water plants although, of course, conditions differ. Plants that have lots of sun require more watering than those in the shade, and plants in small pots dry out more rapidly and require to be watered oftener than those in larger pots. In summer one can water every day, but in winter plants do no need the same amount of water for their growth is not so rapid as it would be if they were out in their beds exposed to the hot summer's sun. Do not sprinkle only the surface, but water thoroughly.

After watering do not allow the pots to stand in a saucer full of water. See that this saucer is kept dry as otherwise you are apt to have your plants weakly and unhealthy.

INSECT TROUBLES

The most frequent insect pest of house plants is the aphis, commonly called green plant-louse. I do not wait for the pests to appear, as once a week I take a whisk and go over each plant carefully, thoroughly sprinkling over and under the leaves. The preparation I use is one cupful of coal oil to a gallon of soapsuds and water. I always keep a supply of this mixture on hand. It is made as follows: A half cake of ordinary washing soap is dissolved in one gallon of boiling water. After cooling one cup of coal oil is added. The mixture is then well stirred.

Examine the leaves of your plants every day. If you find that some are turning yellow and drop off without any apparent reason, you will most likely find that the red spider is the cause. Turn up the leaves and examine them carefully. If any tiny webs show on it, you can be sure the red spider is at work.

Nothing will kill the red spider but moisture. I have had to use a tubful of water and souse the whole plant in it, going over each leaf between thumb and finger, rubbing them gently. Do this three or four times a week until the leaves have lost their yellow appearance and the plant regained its green freshness.

I collect all the tea leaves from the dining table, and once or twice a week, before watering, put them around the plants. I then water through them. This is good for the bloom and it also has a tendency to keep away insects.

THE BEST LOCATION

Windows facing south or west are the best. See that your plants have plenty of sun. As they love sunshine and fresh air give them plenty of both on very mild days. If possible open a door or window at some distance from them and let the colder air from outside mix with the warm air of the room where your plants are, before it reaches them. This is necessary, for, as your room is liable to be pretty warm, a cold draft directly on your plants is likely to chill them or give them a set back from which they may not recover during the season.

GERANIUM SLIPS

I am often asked about slips from geraniums taken from the garden to pot for the winter as winter plants. If winter bloom is wanted take in the whole plant, as plants that are one year old give much better satisfaction, as they will blossom throughout the winter. If, on the other hand, all that is wanted is for next year's outdoor growth, slips are all that are necessary. These should be kept clipped back and the buds nipped. One or two may be allowed to come to maturity, but no more if you want to have them do well out of doors next year. Plants that have been blooming all winter cannot be expected to do well next summer. All flowering plants must have a rest some time. So keep your whole plant for winter bloom and your slips for next summer.

One can have boxes in the window which will be a delight to the whole house. Such flowers as sweet peas, nasturtiums, dwarf climbing; mignonette, machet or Defiance, with the trailing tradescantia do well in boxes, with ordinary care.

The Far North Western Part of Ontario showed what it can do in the Production of High Grade Potatoes, when it made This Exhibit at the recent Ontario Horticultural Exhibition, in Toronto

Diseases of Ginseng*

Prof. J. E. Howitt, O. A. C., Guelph, Ont.

GINSENG has been cultivated only during the last twenty or twenty-five years. The early ginseng growers were little troubled by diseases. During the last few years, however, a remarkable development in the number and severity of ginseng diseases has taken place. There are now recorded some fifteen more or less serious diseases of ginseng. Now, much of the success of the ginseng grower depends upon his ability to prevent disease.

In Ontario there are four serious diseases of ginseng, namely, blight or alternario blight, rust, fibre rot or end rot, damping off of seedlings and wet rot. All these diseases, except the last named, are fungus diseases, that is they are caused by minute plants termed fungi, which live upon the ginseng plants and obtain their food from them. In so doing they injure the ginseng plants and produce disease. The question is often asked, from whence come all these fungus diseases, and why have they become so serious to cultivated ginseng. This question is best answered by comparing the conditions under which ginseng grows wild and the conditions under which it is grown in cultivation.

NATURAL CONDITIONS

Ginseng is found growing wild in rich, moist, well drained soils of hillsides and ravines covered by deciduous trees where each fall it receives an abundant mulch of forest leaves. In cultivation the ginseng plants are crowded together; very frequently the ginseng beds are not properly underdrained and too often the soil is improperly fertilized so that it loses the acid condition characteristic of forest soils in which ginseng naturally grows, and becomes alkaline.

From this brief comparison, it is seen that the chief factors which account for the increase and severity of fungus diseases under cultivation are: First, crowding the plants together in the ginseng beds so that the spores of disease-producing fungi are readily dispersed from plant to plant by wind, water and insects. In nature the plants are separated by hills and trees and other plants, so that the fungus spores are not readily distributed from one ginseng plant to another. Second, the lack of proper underdrainage; too often the grower depends upon the natural slope of the land or the character of the soil for drainage, forgetting that in the woods, where ginseng grows wild, the trees pump up from the soil the excess of moisture. Third, the change from an acid to an alkaline condition of the soil, due very often to the application of unsuitable fertilizers.

Prevention is the watchword in dealing with all kinds of fungus diseases. It is, therefore, important that the ginseng growers should endeavor to do away as far as possible with the conditions which under cultivation favor the development and spread of fungus diseases.

Drainage is absolutely essential if the best results are to be obtained. Open drains cannot be depended upon. Ginseng beds should be tile-drained. Three-inch tiles are satisfactory for this purpose; the depth at which these are placed will depend upon the character of the soil. In sandy or gravelly soil they should be placed from three to four feet deep, while in heavy clay soils not more than one and a half or two feet deep.

The lines of tile should be placed from six to eight feet apart and when possible the drains should be placed in the centre of the ginseng beds. Too many growers depend upon the natural slope of the land or the character of the soil for drainage.

FERTILIZERS FOR GINSENG

Much depends upon the applying and the proper kinds of fertilizers to the ginseng beds. If unsuitable fertilizers are applied, rust or fibre rot soon makes its appearance. Lime and wood ashes were for a number of years frequently used as fertilizers upon ginseng beds. The result was that the soil became alkaline and this alkaline condition favored the growth and development of the fungus which produced rust or fibre rot. Consequently this disease became very serious in ginseng beds which had been fertilized with lime or wood ashes. Lime or wood ashes are not to be recommended as fertilizers for ginseng.

Acid phosphate (treated rock or bone) is a satisfactory fertilizer for ginseng,

*Extract from an address delivered last September before the annual convention of the Ontario Ginseng Growers' Association.

Best Vegetables for Amateur Gardens*

Prof. A. H. McLennan, O. A. C., Guelph, Ont.

FOR amateur gardens I would recommend the use of the following vegetables:

Asparagus—Conover's Colossal or Argenteuil. Place the rows four feet apart, and the plants eighteen inches in the rows; apply manure liberally after the cutting season (which should end June 25th) and give good cultivation. Cut off the tops in the fall when the berries are red.

Beets—Crosby's Egyptian, for early; Detroit Dark Red for main crop. Sow early seed as soon as ground is fit, rows twelve inches apart; and for main crop about June 1st. Thin where the plants are thick, and use as greens.

Beans—Keeney's Rustless Wax, German Stringless Green, Fordhook Bush Lima, Cranberry Pole.

Carrots—Chantenay. Sow as for beets then thin to two inches apart.

Cabbage—Early Jersey Wakefield or Copenhagen Market for early; Glory of Enkhuizen or Savoy for main crop. For the home garden the Savoy is the finest quality cabbage, but is not as good a keeper. Early cabbage should be started the middle of March. Start late varieties the end of June.

Brussels Sprouts — Improved Dwarf, Darlington.

Cauliflower—Early Erfurt. Treat as for cabbage.

Corn Salad—Grown in late fall in the place of lettuce.

Cress — Extra Curled. Water cress. Water cress must be kept soaked in water.

Celery—Golden Self-Blanching, for fall and early winter; Giant Pascal or Winter Queen for winter use. Start seed in April, transplant once when one inch high, then into the field, rows four feet apart, plants six inches in the rows.

Corn—Early Malakoff, followed by successive sowings every two weeks, of Golden Bantam, Country Gentleman. Plant as soon as danger of frost is over. Although a golden yellow and thus like field corn, Golden Bantam is the finest quality of all the corns. Have rows four feet apart, hills of three stalks eighteen inches apart.

Citron—Colorado Preserving. Sow in hills six to eight feet apart, after all danger of frost is over, then thin to three plants in a hill.

Cucumber—Cumberland for large cucumber, or Perfection White Spine. Chicago Pickling for picklers. Plant in hills four feet each way. It is best to use the indoor method.

EggPlant—Black Beauty. Sow the seed the middle of March in hotbeds, and transplant to field when danger of frost is past.

Endive—French Curled and Green Curled.

Kale—Dwarf Erfurt or Dreienbrunnen. Sow as for late cabbage, and plant the same.

Kohl-Rabi—Early White or Purple Vienna. Sow seed early for summer use and again about the middle of June for winter use.

Lettuce—New York Iceberg, Grand Rapids. Sow seed as early as possible, then every three weeks for succession. Thin to three inches, then six, then twelve, to secure good heads.

Musk Melon—Spicy, Osage. These may be grown in a hotbed in pots, and then transplanted, or seed may be sown in enriched soil in hills five to six feet apart after danger of frost.

Leek—Musselburg.

Onions — Yellow Globe Danvers, Southport Yellow Globe, and Southport Red Globe. Sow seed as early as possible in rows twelve inches apart. Use the thinnings as green onions. Thin to three inches for large onions. Start in hotbed and transplant some Spanish as Denia, Ailsa Craig or Giant White Leviathan.

Parsnips—Hollow Crown. Sow as early as possible in rows twelve inches apart; thin out to three inches. Leave some of the crop in the ground over winter for early spring use.

Peas—Sutton's Excelsior for medium; and Gradus or Stratagem for last. Sow the early as soon as possible, and the others two weeks later in succession.

Parsley—Triple Curled, XXX.

Potatoes — Early Eureka for early; Green Mountain, or Up-to-Date for late. Use whole two ounce sets. Early potatoes should be placed in a light warm room for three or four weeks before planting so that they will sprout, then take off all but the strongest shoots. They can be placed in the ground as soon as danger of severe frost is over. The late varieties are planted May 24th.

Pumpkin — Connecticut Field. Plant as for citron.

Radish—Scarlet Turnip White Tip, White Icicle. Sow as early as possible in rows twelve inches apart, and follow in succession. For winter use, China Rose or Black Spanish, and sow where early peas were removed.

Rhubarb—Victoria, St. Martin's. Plant four by four feet. Manure liberally in fall and cultivate thoroughly. Break off all seed-stalks as they appear. Have some plants in the cellar in the winter to force.

Salsify—Mammoth Sandwich Island. Handle like parsnips.

Spinach—Victoria. Sow as early as possible; then every month for succession.

Squash—Crookneck or Bush Scallop for summer; Warty Hubbard or Boston Marrow for winter. Plant after danger of frost. Bush varieties four feet apart; others eight feet.

Swiss Chard—Sow early, will produce all season. Outer stems are broken off and used as greens.

Tomatoes—Bonny Best. Sow seed in a hot bed, the first to middle of March. Transplant to open when danger of frost is past.

Turnips—Extra Early Purple Top Milan, Golden Ball, Hazard's Swede. Sow early for summer use, and about the middle of June for late.

Vegetable Marrow—Long White Bush, English Vegetable Marrow. Plant as for cucumbers.

Water Melon — Hungarian Honey, Cole's Early, Harris' Early. These are the most likely to ripen in northern sections. Plant eight feet apart each way.

*Extract from an address delivered before the recent convention of the Ontario Horticultural Association.

Vegetable Jottings

A comparison of the yield of twelve strains of Earliana tomato for two years showed a difference of seven tons per acre. Not only was there a difference in yield, but there was a difference in the character of the fruit. This fact is important from the standpoint of many producers. A corresponding test of Matchless showed a difference of five and seven-tenths tons per acre. In a larger experiment started in 1909 we noted apparent substitution of varieties in several instances. In a variety test of sixty-two so-called varieties we observed the practice of applying a new name to a well known variety.—Prof. C. E. Myers, State College, Pa.

Experiments have shown excellent results from the use of Bug Death in keeping the potatoes free from the ravages of the Colorado beetle. This treatment, however, is considerably more expensive than that in which Paris green is used. Experiments are being conducted with different proportions of lead arsenate, and the results will be published shortly. For the blight it has been found that three treatments with the bordeaux mixture, in which the potato plants were sprayed both above and underneath the leaves, have been about as effectual as six treatments in which the sprayings were all made on the tops of the leaves. As machines are now made for spraying underneath the leaves as well as on the upper surface, we believe that the blight can be controlled much more readily than when the sprayings were all made from above the plants.

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3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates One Dollar an Inch. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

7. Articles and Illustrations for publication will be thankfully received by the Editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1911. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1911	8,082
February, 1911	8,260
March, 1911	8,523
April, 1911	9,469
May, 1911	9,783
June, 1911	10,178
July, 1911	10,062
August, 1911	10,043
September, 1911	9,973
October, 1911	9,991
November, 1911	9,988
December, 1911	10,137
Total	114,489

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911 9,541

November, 1912 11,305

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

HEATED CARS

During the past few years Canadian fruit growers have won a number of notable victories over the railway companies by laying their complaints before the Dominion Railway Commission. One of the most important yet obtained was made known early in December when the board announced its ruling in regard to the responsibility of the railways in the matter of providing suitably heated cars for the transportation of perishable products such as fruit, vegetables, and flowers in less than car load quantities.

The decision of the board was as follows:

"It is ordered that, until further ordered by the board, upon the receipt of reasonable notice from the shipper or shippers, that such is or are required, railway companies subject to the jurisdiction of the board, operating in eastern Canada, which own refrigerator cars, and according to their respective powers shall furnish to any shipper, or combination of shippers, a heated refrigerator car, or cars, for the carriage, during cold weather, of fruit, vegetables, and eggs in less than carload quantities, the same to be carted by the shipper, and loaded in the car by the shipper or shippers, in the order in which the shipments are to be unloaded. Provided that under this order the carrier be not required to accept shipments necessitating more than five openings of any such car for unloading purposes, to furnish heated cars for transhipment from the original car for destinations off the route of the said car; to accept less than a total weight of 12,000 pounds in any such car, or a less aggregate amount in freight car charges than for 12,000 pounds distributed pro ratably over the various shipments in any car; to accept such shipments unless the freight charges are prepaid, and to assume liability for loss or damage to the property by frost, while in the car, if caused by the opening of the car for loading or unloading purposes, or after it has been unloaded from the car."

While the ruling may not be all that may be desired it is a notable one, and the representatives of the growers may well take heart and press on for the numerous other improvements in shipping facilities that are still needed.

PACKING SCHOOLS

One of the most successful lines of work that has been conducted by the British Columbia Government on behalf of the fruit growers of that province has been the holding of regular packing schools in different parts of the province during the past few years. The Department of Agriculture provides the instructor and pays his expenses. It also bears the cost of the packing paper, the fruit, and all other legitimate expenses.

The instructor takes with him the necessary packing tables and fruit paper and conducts classes wherever application is made for them by responsible organizations which in each case are required to guarantee a minimum of twelve pupils at a fee of three dollars each. The packing schools extend over a week. A series of twelve lessons of two and a half hours each are given. The local organization is required to provide a hall and to heat and light it. Pupils who gain a score of seventy-five per cent. for efficiency in the packing school and who put up a creditable pack for the department prizes the following year are given a diploma by the department.

Not enough attention has been given to this line of work by the Ontario and Nova Scotia provincial governments. It is true that the box packing of apples is not as necessary in the east as it is in the west, but this system of packing has great possibilities, and no better way of encouraging it could be adopted than by providing instruction of this character.

A NEW SPIRIT ABROAD

The mail that reaches our desk from month to month furnishes excellent evidence of the rising tide of public opinion in the matter of civic improvement. A few years ago the number of people in Canada who were doing active public service towards civic beautification was almost negligible. Year by year this number has increased. Our Canadian clubs and other similar organizations are now quick to invite speakers, who are recognized authorities on this subect, to address their meetings. The daily papers and magazines throughout the country are devoting an increasing proportion of their space to the advocacy of proper town planning. This includes the laying out of parks and driveways on a systematic basis that will provide for the future development of their municipalities.

It is not long since a landscape architect was considered a good deal of a curiosity of unusual hardihood. There was a general feeling that such an individual was ahead of the times. Almost all our leading nursery firms now have expert landscape architects connected with their staffs and they are devoting an increasing proportion of their acreages to the culture of ornamental trees and shrubs. In doing this they are only endeavoring to keep abreast of the increasing demand, on the part of towns and cities, for nursery stock of this character.

All this indicates that Canada is passing out of the pioneer stages of civilization into a period of greater culture and refinement. More and more readers of The Canadian Horticulturist are asking us to furnish information on this subject. During the present year we purpose complying with this demand as far as our space permits. Our horticultural societies which have done much to bring about this change in public opinion are now confronted with the responsibility for directing this new and growing movement along right lines.

The returns of the recent Ontario Horticultural Exhibition held in Toronto show that the gate receipts, although the exhibition was conducted on the grounds of the Canadian National Exhibition, were twenty per cent. greater than those of the year previous. This demonstrates that the public will attend a horticultural exhibition held elsewhere than in the centre of the city and justifies the action the directors have taken in making application for the use of the new government building, a larger building than the one used last fall, for the purposes of this year's exhibition. With the location of the exhibition permanently secured and ample space for

future development provided this year's horticultural exhibition should be far and away ahead of anything eastern Canada has yet seen. A great effort should be made to obtain carload exhibits of apples and thus pave the way for the holding of a national apple show in the near future.

PUBLISHER'S DESK

The apples shown on the front cover of this issue of The Canadian Horticulturist were a portion of the 1912 crop of Mr. R. R. Sloan of Porter's Hill, Huron Co. They were Northern Spys and were grown on trees twenty years of age. The orchard was sprayed thoroughly three times with lime-sulphur solution and arsenate of lead.

So much interest was taken by the readers of The Canadian Horticulturist last year, in the series of articles we published describing Canadian gardens, arrangements have been made for the publication this year of a similar series. Most of the gardens that will be described will be those of amateurs, like the garden of Mr. Ellis, described in this issue. We will, however, publish descriptions of two or three gardens on some of the large estates which are now becoming numerous in Canada. Some of these estates have features that will compare favorably with those that are to be found anywhere in the world. Illustrated descriptions of them we believe will be of great interest to many of our readers.

In this issue appears the first of a series of articles dealing with the growing of flowers by amateurs that are to be contributed during the next few months by Mr. R. S. Rose, of Peterboro, whose garden was described in one of the summer issues of The Canadian Horticulturist last season. Mr. Rose has met with unusual success with gardens he has conducted in Westmount, Quebec, as well as in Peterboro. His articles will be of special helpfulness to the average amateur flower grower.

The enormous purchasing power of the thousands of fruit growers who read The Canadian Horticulturist, is becoming better appreciated by the large Canadian concerns which cater to that trade. Never in in the history of The Canadian Horticulturist have we received as many large advertising contracts from firms looking for business in this field as we have during the past few months. Not only have firms which have been doing business with us for years greatly increased their advertising space, but other large firms, which have never hitherto sought the trade of the fruit growers, have contracted for considerable advertising space with the intention of entering into business relations with the fruit growers. The Sherwin-Williams Co., of Montreal, have recently contracted for liberal space in which to advertise their arsenate of lead. The Petrie Mfg. Co., of Hamilton, is seeking to introduce their spraying machines, as is the Fruit Machinery Co., of Ingersoll. Other similar firms might be mentioned. These and many other firms realize that there is no better medium in Canada for reaching the fruit growers than The Canadian Horticulturist.

Ontario Horticultural Association Convention

Lack of space prevented the completion in the last issue of THE CANADIAN HORTICULTURIST of the report of the annual convention of the Ontario Horticultural Association, held in Toronto in November. An address that was much appreciated was given by Prof. H. L. Hutt, of the O.A.C., on English gardens. These remarks were illustrated by a number of fine views.

Two excellent papers, one dealing with "Continuity of Bloom in Small Gardens," by Mr. W. T. Macoun, of the Central Experimental Farm, and the other with the cultivation of strawberries, by W. A. Dier, of Ottawa, were unusually interesting.

Mr. R. B. Whyte, of Ottawa, gave an address on the successful growing of perennials from seed under ordinary conditions.

For planting, the soil must be very fine, and the sowing must be done early. "I plant in drills, like carrots," said Mr. Whyte, "and put my drills from six to eight inches apart. The seeds I put about one or two inches apart and in depth according to the size of the seed. After planting, I use a common hoe and pack the earth down quite hard. It is very essential that the earth come in close contact with the seeds.

"Until the plants have appeared above the surface, the earth must never be dry. Shade the bed with cheesecloth or straw. Keep clear of weeds all season by persistent working of the soil around the plants. I always try to transplant in September, on a wet day if possible. After setting out, the plants should be carefully shaded until they have taken hold. In this connection I may say that I consider fall transplanting better than that done in the spring."

THE HOLDING OF EXHIBITIONS

An interesting report was given by Mr. W. B. Burgoyne, of St. Catharines, on the success that has attended the efforts of his local horticultural society in the holding of horticultural exhibitions. Much of the success of the St. Catharines Society is due to the summer exhibitions that have been a feature of its work for several years as well as to the large fruit, flower and vegetable show that is open to competition for the Niagara District and which is held in September each year.

The report of the Nomenclature Committee, as presented by Jno. Cavers, of Oakville, included a list of twenty-five words the pronunciation of which is often confusing, due to the fact that different pronunciations of these words are in general use. The committee recommended for adoption certain pronunciations given in the report.

It was decided to amalgamate the Nomenclature and Varieties Committees in a committee to be known as the Names and Varieties Committee. This committee will consist of W. T. Macoun and F. E. Buck of the Central Experimental Farm, Ottawa; Prof. H. L. Hutt and Wm. Hunt, of the O.A.C., Guelph; H. J. Moore, of the Queen Victoria Park, Niagara Falls; and Roderich Cameron, of Toronto. During the convention Mr. W. T. Macoun, of the Experimental Farm, Ottawa, made the important announcement that he intends to establish on the farm the most extensive trial grounds in the world for several different standard varieties of flowers. It is hoped that arrangements can be made through the Names and Varieties Committee to have similar work undertaken, to some extent at least, with other varieties of flowers at Queen Victoria Park and at the Guelph Agricultural College. In this way it will become possible to obtain reliable information at all times concerning these different varieties of flowers from these trial grounds.

Mr. F. E. Buck, of the Experimental Farm, Ottawa, gave an interesting talk on perennials.

THE BILL BOARD NUISANCE

A lively discussion took place in regard to the bill board nuisance. The Clinton Society reported that it has succeeded in having this nuisance abolished in Clinton. The delegate of this society who was present stated that this had been accomplished by calling on the parties who owned the vacant lots on which the bill boards were displayed and inducing them to refuse to allow the bill boards to appear there any longer.

The discussion showed that delegates from many other points desired to abolish bill boards, but that their efforts to do so had not been successful owing in part to the fact that there is no provincial law giving municipalities the power to prevent the use of bill boards. It was recommended that that association should cooperate with the Ontario Municipal Association in an effort to gain such legislation, but the discussion ended without any decision being reached.

AN ENJOYABLE FUNCTION

An enjoyable feature of the convention was a reception tendered the visiting delegats by the officers nd members of the Toronto Horticultural Society. The reception hall was nicely decorated for the occasion, the chair being occupied by the president of the Toronto Society, Mr. D. A. Dunlap. President Falconer, of Toronto University, pointed out that Canada being a new country has much to learn from England in the matter of parks and the beautification of cities and private residences. As a means of arousing greater interest as well as setting an example in this direction he suggested that the railways should do more than they have to beautify their stations, that cities should expend larger sums on their parks, and that in Toronto a zoological garden should be established.

Mr. P. W. Ellis, of Toronto, a member of the Queen Victoria Park Commission at Niagara Falls, gave an interesting description of the development of that park as well as of plans for its future. He looked forward to the time when the park would be so noted for its beauty at those seasons when certain varieties of flowers are in bloom that excursions will be run to the park at low rates from western Ontario points at least to permit the public to derive greater benefit from the park. Mr. J. E. Atkinson and the past president of the society, Mr. W. G. MacKendrick, also spoke. Refreshments were served. The convention was one of the most successful in the history of the association, and contained promise of better conventions to come.

The high standing of the Wenatchee Valley apples in the Old Country markets was shown recently by an advertisement which reached The Canadian Horticulturist in which an apple dealer of Covent Garden, London, England, was offering five thousand five hundred boxes of these apples at a sale, which commenced on Monday, October 7th, in wholesale lots of not less than one hundred boxes at the rate of two dollars and eighty-five cents to three dollars and sixty cents a box for four tier boxes.

A New Style Apple Box

Alexander C. Biggs, Burlington, Ont.

As we have been using an apple box for several years with very good success and of an entirely different construction from those in general use, I thought perhaps it might interest your readers to know something about them. Some years ago when that good, sensible idea of packing apples in boxes was introduced and encouraged in this country the writer was very much impressed with the many good points in its favor, and immediately adopted the plan of packing No. 1 quality in this package and the No. 2 quality in barrels.

After a few seasons' use I found that we had considerable breakage in these boxes through the handling of them in transportation, and as a consequence, loss en route. This was caused partially by imperfect end boards and the outward pressure from the bulge, and also the rough handling to which they are subjected in forwarding; thus the suggestion came to improve the package, and this we have done in a very simple manner, which I shall explain, but before doing so I will say that the inside measurement of our box is 11 inches wide, 10 inches deep and 20 inches long, and contains a government standard bushel. The change of the construction relates chiefly to the ends of the boxes, which instead of being the ordinary size, we make them 11x12 inches, the grain running lengthwise and quite opposite to the ordinary box. We nail our sides, which are 11½ inches wide, lengthwise on the ends, allowing them to project one-quarter inch beyond the sides; these should be nailed firmly with at least six or seven stout box nails (1¾-inch coated) at each corner. The tops and bottoms are the same, practically the same size as the inside measurement of the box, 11x20 inches, but we make them about one-eighth inch shorter and narrower, so that they will drop inside the four walls easily. (I am speaking now of seasoned stock.) The cleats are ½x⅝x10½ inches and we nail one of these on each end board, across the grain of the wood, before nailing on the sides, so that when you have nailed your sides your box is ready for packing, with the exception of dropping in your top or bottom, which will rest on the cleats; these we do not nail, as the fruit in the package holds them firm on the inside and the cleats on the outside, thus allowing perfect freedom for the bulge and also contraction as required by the shrinking of the fruit. The packing of the fruit is proceeded with just the same as in any ordinary box with this exception, that the ordinary box requires very exact packing, while in this package one-quarter inch may be permitted without any doubt of a tight pack, for the simple reason that the cover is within the four walls of the box and is applied and pressed direct to the fruit, using a corrugated cap between, and when the press is on the two remaining cleats are nailed across the ends either on the one-half inch or five-eighths inch side, as the fruit may require; this box is then complete.

The Biggs Apple Box—End View, Width 11 in

The utility points of this package are as follows: Strength and Durability—This is perhaps the chief requirement in any fruit package, and will necessitate one to be sufficiently strong to withstand the rough handling to which they are usually subjected in the course of transportation. This apple case has been thoroughly tested and upon examination of its firm and simple construction it will readily be conceded to have the strength and durability that will stand the strain or test. Protection of Bulges—To all growers and packers accustomed to the usual box for shipping their first-class fruit the protection of this bulging portion of package is highly important, for the simple reason that no matter how carefully the fruit may be packed or how snugly the case may be put together, unless this part be protected from the weight of the other packages when piled during transportation the fruit inside will be more or less bruised and destroyed. This bulge is securely protected in our package. Protection of cleats—The cleats used on this case, which are nailed across the ends

Removal Sale

The Sale of a portion of our Nursery Land at Pointe Claire necessitates the removal of our main nurseries.

This land must be cleared next spring and we have decided to offer the stock at a discount of from 25% to 50%.

All stock is first-class and consists of

Thirty Thousand Fruit Trees of the hardiest varieties.

Ten Thousand Shade Trees.

Fifty Thousand Ornamental shrub and hardy Perennials, Paeonies, etc.

Write at once for complete list.

The CANADIAN NURSERY CO., Ltd.

10 PHILLIPS PLACE - MONTREAL, P.Q.

Greenhouse Glass

We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
Busby Lane	Mercer St.	Market St.	Powell St.

Pilkington Bros., Limited

Works at St. Helens, Eng.

The Biggs Apple Box, Side View Showiug Bulge

at right angles, thus securely preventing the ends from splitting, are placed inside and below the projecting ends, which effectually protects them from displacement, and thus ensures the safety of the package during transportation. Safety in Handling—The projection of the ends afford excellent handles for the purpose of removing, piling, etc., during transportation, and is commendable in itself as a protection against breakages by handling. Ease of Access—One small cleat removed and the package is open for inspection, and the cover is as easily replaced without breakage. Ventilation—The projection of the ends prevents close piling in either car or steamship, thus affording ample ventilation during transportation. Adaptability of the Package to the Fruit—By the adjustment of the cleats in their respective positions the operator, when placing on the cover, is enabled to pack to the fruit, as the cover fits in between the four walls of the package, and when pressed and held in place by cleats secures the fruit very firm, and consequently does not depend upon exact packing for a snug box. The package is not patented and therefore can be used by anyone, and we herewith give dimensions of stock:

	Width inches	*Length inches*	*Thickness inches*
Ends	11	12	⅞
Sides	11½	21¾	⅜
Tops and bottoms.	10⅞	19⅞	¼
Cleats	⅝	10½	½

San Jose Scale in Nova Scotia

S. C. Parker, President N. S. Fruit Growers' Association

The editorial in the November issue of The Canadian Horticulturist gives a fair statement of the situation in this province. Your conclusions, however, do not agree with the ideas of the fruit interests here. The Nova Scotia Government, backed unanimously by the fruit men, are prepared to go to any extremes to eradicate the scale if possible, and provide against its further spread.

There is no panic but a straight business proposition on the part of all interested to cut out this scourge in the beginning, if effort and money will do it. Our Ontario friends, who have supplied us with one hundred and fifty thousand trees annually for the past few years, assure us that the scale is easily kept in check by dormant spraying, that it is a "blessing in disguise," etc. However, this is one of the blessings that we would like to be spared, and are perfectly willing for Ontario to enjoy alone, rather than share with us. The fruit men are practically unanimous in agreeing to cease planting for a few years, if necessary, till we see where we are at. We have been living in a fools paradise, buying largely

Douglas Gardens
Oakville, Ontario

A Happy
New Year

and Many Happy
Returns of the Season

To all the readers of
The Canadian Horticulturist

JOHN CAVERS

We take great pleasure in informing our many patrons that we have engaged

Mr. Roderick Cameron

AS LANDSCAPE EXPERT

For twenty-three years as Superintendent of Queen Victoria Park, and for the past five years as Superintendent of Parks for the City of Toronto, Mr. Cameron has gained much valuable information, which shall be of great assistance to our customers.

At present Mr. Cameron is on the Atlantic bound for Great Britain and the Continent, where he will buy an extensive line of the latest creations in ornamentals, landscape material, and especially high class perennial plants. We shall have a nice stock of large plants for immediate sale.

On his return, Mr. Cameron will take charge of the Oakville plant, which will be devoted almost entirely to ornamentals. As Landscape Expert he is at your service, and we suggest that engagements be made with us now, which will have his attention upon his return.

Our FRUIT TREES are very fine, and we shall be glad to quote prices on your requirements.

AUBURN NURSERIES, LIMITED
QUEENSTON GRIMSBY SIMCOE OAKVILLE

For the Land's Sake

Use the best Manure
and get

Good Crops

For Nurseries, Fruit Growers
and Gardeners.

Sure Growth Compost

Makes poor land fertile and keeps fertile land most productive.

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S. W. Marchment
133 Victoria St. TORONTO
Telephones: Main 2841; Residence, Park 951

Say you saw the ad. in The Canadian Horticulturist

This is the Book that will show you how you can have a

BEAUTIFUL OLD ENGLISH GARDEN

THE OLD ENGLISH GARDEN owes much of its charm to the beauty of its simple herbaceous plants.

KELWAY'S COLOUR BORDERS of Paeonies, Delphiniums, Pyrethrums, Gaillardias and the like will enable you to reproduce this picturesque effect under almost all conditions of soil and climate. Borders are planned to fill any space, and on receipt of dimensions, carefully selected plants are sent beautifully packed, labelled and numbered in order for planting.

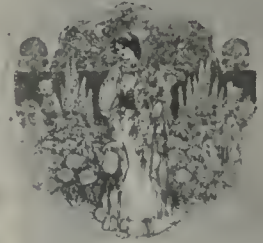
The cost is $6.00 for every 10 square yards.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed free on application to

KELWAY & SON
CARE OF
The Canadian Horticulturist,
Peterboro, Canada.

Write for a copy of this useful book. It comes to you by return. mail free

Kelway's Perennials for American Gardens



Direct from
KELWAY & SON
The Royal Horticulturists
LANGPORT ENGLAND

from Ontario nurserymen, depending on local inspection and fumigation, and we find that criminal negligence and carelessness have been the result. For instance, a Nova Scotia buyer in a large Ontario yard selecting trees, heard orders given by the manager to fumigate a lot of stock in a "box car!'

Of some one hundred and fifty thousand trees from Ontario nurseries received here this spring about twenty-five per cent. had scale on them—some liberally encrusted. To be sure most of the scale was dead, but we do not propose to pay for any more apple trees from Ontario or anywhere else with scale on them, dead or alive. The "blessing" will have to be disguised more carefully in the future before it will pass current here. The "three large nurseries that furnished ninety-eight per cent. of the stock planted in Nova Scotia," must get busy and clean up the stuff before any more of it comes this way. We want the trees, and are willing to pay the price, but we do not want any "blessings" thrown in. While they are cleaning up we will mark time and take stock, incidentally doing a little in the nursery business on our own account.

Early in 1912, while pursuing Brown Tail Moth, Mr. Saunders found live San Jose Scale on apple trees brought from Ontario in 1911. One blessing—not in disguise—we have in Nova Scotia is a live Secretary of Agriculture. There was something doing in horticultural lines almost immediately. Secretary Cumming soon had a good staff at work running down the trees planted in 1911 The inspectors soon found that 1910 plantings were also infested, and 1912 plantings were "lousy."

As fast as competent men could be obtained they were put into the field, and spent the summer in hard work. The net results are eight hundred and fifty trees found infested with live scale, torn out and burned root and branch. Mr. Saunders, who has had charge of the field operations, is sanguine that in two or three years the scale can be exterminated, and every fruit grower is willing and anxious to give him a chance to try.

The Provincial Government, on petition of the Fruit Growers' Association, took power last session to make regulations by Order in Council, to control the San Jose Scale and other insect pests.

The Order in Council, as promulgated on October 25th, 1912, provides that all nursery stock coming into the Province shall pass through either Middleton or Truro as ports of entry, and no imported nursery stock will be delivered to any importer or consignee within the Province of Nova Scotia unless the same is accompanied by a certificate signed by the Provincial Entomologist or other authorized Government officer, that the nursery or other premises on which the same was grown was inspected between the fifteenth day of June and the fifteenth day of September next preceding the shipment thereof, and that said nursery or other premises were found to be apparently free from San Jose Scale.

The Regulations as promulgated, are drastic and will mean prohibition to trees from Ontario during the coming season at least.

I appreciate The Canadian Horticulturist very much. Your efforts to provide practical information for the fruit grower, gardener and florist entitle you to the increasing patronage you are receiving."—R. Elliott, Brantford, Ont.

If you don't see it advertised ask us.

FERTILIZER

	Registered under Number
Lesage Fertilizer for Grain and Wheat	446
Lesage Fertilizer for Corn and Vegetables	447
Lesage Fertilizer Special for Tobacco	448
Quebec Special for all Kinds of Crops	331
Fine Ground Bone	330
Thomas Phosphate Powder (Caledonia)	338
Lesage Royal Potato Manure	449

For Catalogue and Prices write to

LESAGE PACKING & FERTILIZER COMPANY, Ltd.

Head Office: 53 St. Paul, MONTREAL

DON'T SACRIFICE!

If you have good apples to sell and you think you should get more than you are offered, do not sacrifice them. Ship them to Toronto. The Toronto market alone will require immense quantities of apples between now and spring.

We have cold storage facilities and can store your apples till a favorable price can be realized, thus protecting your interests. Write or wire us to-day.

DAWSON-ELLIOTT CO.

90 COLBORNE ST. - TORONTO

SPECIAL NEW YEAR CLUBBING OFFER

Good up to January 31st, 1913

The Canadian Horticulturist - - .60
and
The Canadian Apple Growers' Guide, post paid - - - - $2.25

Regular price $2.85

OUR SPECIAL OFFER $2.00

If your own subscription expires this month, take advantage of this SPECIAL OFFER when renewing. - Write TO-DAY.

Address

THE CANADIAN HORTICULTURIST

PETERBORO - - ONTARIO

Good Prices Always

For Your Fruit and Vegetables

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

We Solicit Your Consignments

Send for Shipping Stamp

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

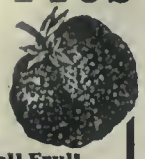
H. PETERS

88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

Wonderful Fall-Bearing

Strawberries



Fruit in fall of first year and in spring and fall of second year. Big money-maker! 500 plants set in May yielded from Aug. 23 to Nov. 11 nearly 400 quarts which sold for 25c per qt. The past season (1912) we had fresh strawberries every day from June 15 to Nov. 15! We are *headquarters* for

Strawberries and Small Fruit Plants of all kinds

Big stock of best hardy varieties at very low prices. Plum Farmer, Idaho and Royal Purple Raspberries, also Blackberries, Gooseberries, Currants and Grapes. 30 years' experience. Catalogue free.

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many times in ruined eyesight, annoyances of odor and cleaning of greasy lamps. May its well buy it and own it. Simple, safe and cheap—generates its own gas giving 200 candle power of pure white brilliant light for less than ½ cent per hour. Color post card free. Write to day for circular 'H' and free post card.

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The market gardener gets the top of the market for early produce, and the general farmer saves many dollars from early frosts by using a **soluble,** high-grade complete fertilizer, like one of our Stockbridge manures. There is no mystery about it. A crop, like a calf, will grow quicker and healthier on a full ration, **but the ration must be right.** The

Stockbridge Manures

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The Stockbridge Manures were formulated by the late Professor Stockbridge of the Massachusetts Agricultural College and were introduced forty years ago. They have been improved and kept up-to-date. The Stockbridge and all the other Bowker brands are soluble, active, sure. They are made from the best materials by special factory methods. Prompt service and moderate prices go with them.

We want Agents in unoccupied territory. Write today for prices and terms; this may mean a good business for you if your act at once.

Write anyway for our illustrated catalogue and calendar. We want you to know what we can do before you buy your spring fertilizer.

BOWKER FERTILIZER COMPANY

73 Lyman Street, Buffalo, N. Y. 39 Chatham Street, Boston, Mass.

Original and largest manufacturers of special fertilizers.

Fruit Combine in the West

Replying recently to the charges that combine exists among the fruit dealers of the prairie provinces, Mr. W. H. Bunting, of St. Catharines, stated that the charge was only partly true. In Winnipeg the combine had been broken by the St. Catharines fruit growers.

"Some years ago," said Mr. Bunting, "an attempt was made by American firms to buy up all the wholesale fruit houses in the west. They succeeded in establishing a chain of houses under their control throughout the west. Their object was to control the buying and selling through the western provinces, to prevent others from gaining a foothold. About three years ago, when affairs became so strenuous in Winnipeg that purchasers were at the mercy of the combine, the growers in the St. Catharines Cold Storage Company established the wholesale firm of the McNaughton Fruit Exchange at Winnipeg. Thither the Ontario fruit was shipped. It was sold by auction to the consumer, with the result that people bought direct and prices began to drop. Since then several hundred carloads of Niagara district fruit have been sent to Winnipeg. Last fall two or three carloads were shipped daily, and the combine in Winnipeg was completely broken.

"High freight rates west of Winnipeg have militated against eastern growers fighting the combine in Calgary, Edmonton and other cities. It costs twice as much to ship from Winnipeg to Calgary, a distance of eight hundred miles, as it does to ship from St. Catharines to Winnipeg, a distance of one thousand miles. We are fighting for lower rates, and hope soon to have them reduced. The Railway Commission has asked the C.P.R. to give reasons why the rates should not be reduced. As soon as the rates are reduced to Alberta and Saskatchewan eastern growers will attempt to break the combine's high-handed work west of Winnipeg."

THE WEST ACTIVE

"In the meantime, as far as the more western points are concerned, such as Calgary, Regina, Moosejaw and Edmonton, British Columbia growers through the medium of the Vernon Fruit Exchange, have been working along the same line as we have in the east in a determined effort to place British Columbia fruit in the prairie cities independent of the organization which attempted to corrall the trade. The Vernon association has met with very good success and is I believe now on a satisfactory footing and promises to be of great value to British Columbia growers."

Items of Interest

Cherry Lane, a beautiful avenue leading from the roadway to Brown Bros.' Nursery offices at Fonthill, Ont., has long been admired for its beauty. It is bordered on either side by cherry trees, one row on each side. The product from these trees this year was 1800 baskets, all of which were sold to the Pelham Canning Company. The price reached over $1,800. The product was the finest grown in the township.

Quite a number of the orchard owners in the Meaford district, Ontario, have commenced setting out plantations of peaches. Several have put out twenty to forty trees, and some have gone as high as two hundred. The varieties selected are for the most part Triumph, Carmen, Fitzgerald, Elberta and Crawford.

Rev. W. M. Viney, of St. Catharines, succeeded last year in growing a cotton plant from seed sown in the parsonage garden.

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who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

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The seed was not sown until June. It produced a large plant that blossomed freely, and developed thirty-four immature bolls. Had the seed been planted about the first of May it is probable that the bolls would have matured.

On exhibition in the show window of Messrs. A. F. Ross & Co's grocery store, in Truro, N. S., recently, was a part of a barrel of apples which, for quality were certainly not what they were bought for, which was No. 1 Gravensteins. Many of the apples were undersized, irregular in shape, and partly eaten by worms. Altogether they were a disgrace to any packer of fruit. On the head of the barrel was stencilled the name of the packer, with the words, "No. 1 Gravensteins."

Prof. E. R. Lake, who succeeds the late Prof. John Craig, of Cornell University, as secretary of the American Pomological Society, is Assistant Pomologist at Washington. He has had an extended experience in Michigan and the Pacific Coast, where he has taught in the agricultural colleges of Oregon and Washington for many years, besides having been actively engaged in orcharding. His friends in British Columbia will be pleased to hear of his appointment to this position.

Advices received by the trade and commerce department at Ottawa, show that there will be a good market in Germany for Canadian apples. Last year some one hundred and twenty thousand barrels were received at Hamburg, and the conditions warrant the expectation that the demand will be fully equal to that of last year. Three large importers in Hamburg are anxious to ascertain if they can possibly obtain a quantity of the same variety of apples of from five hundred to one thousand barrels put up by the same packer under

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Hanging Baskets, Ferns Pans, Etc.

We have a large stock of all sizes on hand, and can ship orders without delay.

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REX ARSENATE OF LEAD

THE ORIGINAL FRUIT TREE SPRAY

There were sold during the season of 1912, 50,000 (fifty gallon) Barrels REX LIME and SULPHUR SOLUTION, and 1,500,000 pounds REX ARSENATE OF LEAD.

THERE'S A REASON

For such an immense sale of REX goods. It is the "HIGH" quality of the raw materials we are compelled to obtain to manufacture our perfect solution. This costs us more than 25% per barrel over the materials that our competitors see fit to use.

This will not permit us to compete in price with opposition, but we know we can give you 100% more value, and you have no sediment or mud, or waste material to pay for.

The Growers of the Half Car Load, FIRST PRIZE BOX APPLES, awarded to Northumberland and and Durham, that were shown at the Fruit Show in Toronto, in November last, ALL USED REX SPRAY SOLUTIONS.

To have perfect Fruit it is necessary to use the highest class materials, which means you must use REX.

Send for Free Bulletin and Instructions to Fruit Growers.

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to do their best for you. Special attention in the winter months pays, not only now but th- ughout the whole year. Lack of exercise and heavy feeding of dry feeds make liver and bowels sluggish, and the animals unthrifty and unprofitable.

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corrects these conditions at small cost. Test at our risk! 25c, 50c, $1; 25-lb. pail $3.50

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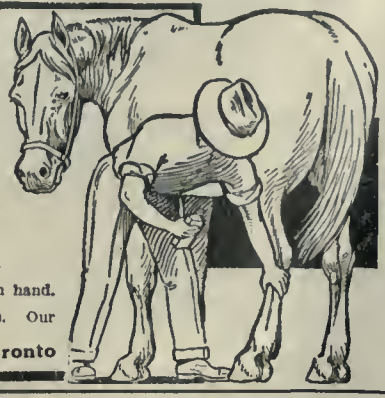

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The James Stewart Manufacturing Company Limited

WOODSTOCK, ONT. WINNIPEG, MAN.

R[illegible] EPT CAN[illegible]A MAGAZINE No 4

the same brand which would become known and appreciated for reliability.

Mr. Gordon Bunting, son of Mr. W. H. Bunting, the well known fruit grower, of St. Catharines, who has been chief assistant to Mr. W. T. Macoun, Dominion Horticulturist at the Experimental Farm, Ottawa, has been appointed Professor of Horticulture at Macdonald College, Quebec. He takes the place of Prof. W. S. Blair, who goes to Kentville, N. S. Prof. Bunting is the youngest professor in the McGill faculty, Macdonald College being affiliated with McGill. He is twenty-six years of age, but has had an unusually wide experience.

An experiment conducted by J. Thorne Baker, a scientific expert of London, Eng., to ripen unripe peaches by the application of electricity, is reported to have been successful. A peach was charged with electricity and on being examined later, was found to have ripened to the stone. Further improvements are being made in the apparatus that was used, with the object of developing an instrument that hotels and fruiterers will be able to use to ripen partially green fruit.

The Canadian Horticulturist has recently received two extremely valuable publications. One is a book entitled "The Potato" its authors being Eugene H. Grubb, and W. S. Guilford, two noted United States authorities. It comprises some five hundred and fifty pages, and is devoted entirely to subjects pertaining to the culture of potatoes. It is published by the Musson Book Co., Limited, of Toronto, and retails at $2. It is said to be the most complete, final and authoritive work on the potato ever issued. The second publication is entitled "Michigan Bird Life," and is by Walter Bradford Barrows, of the Michigan Agricultural College. It contains several hundred pages, and is profusely illustrated. Practically all the known birds of the continent are described fully. Any student of bird life will find this volume a treasure.

Out of one million two hundred thousand peach trees in the Niagara District, Prof. L. Caesar of the O.A.C., Guelph, estimates that over fifty thousand last year showed symptoms of Yellows or Little Peach and ought to be removed. Probably nine-tenths of the diseased trees will be found in about thirty-five orchards. These orchards are not confined to any one district, but are pretty well distributed, though three or four of the worst diseased orchards are usually found close together. Prof. Cassar states that the cause of the diseases is as yet unknown.

Nova Scotia

The fruit growers of the Valley are thoroughly aroused to their danger from the San Jose Scale, and their resolution passed by the meeting at Kentville, on October 24th, caused the Government to immediately get into action. The new regulations passed by Order in Council on October 25, are sweeping in character, and while somewhat in the nature of a locked door after the hen roost has been raided, will prevent any further importation of trees covered with dead or living scale.

Briefly the new law is as follows. All nurseries in districts where San Jose Scale is known to exist, must have a yearly inspection and certificate from the Department of Agriculture of their apparent freedom from scale. All trees imported into the province must have this certificate attached, and come through either by Middleton or Digby, where they will be re-examined and fumigated. Any stock found to

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If you can find a spraying outfit of another make that represents the same dollar-for-dollar value.

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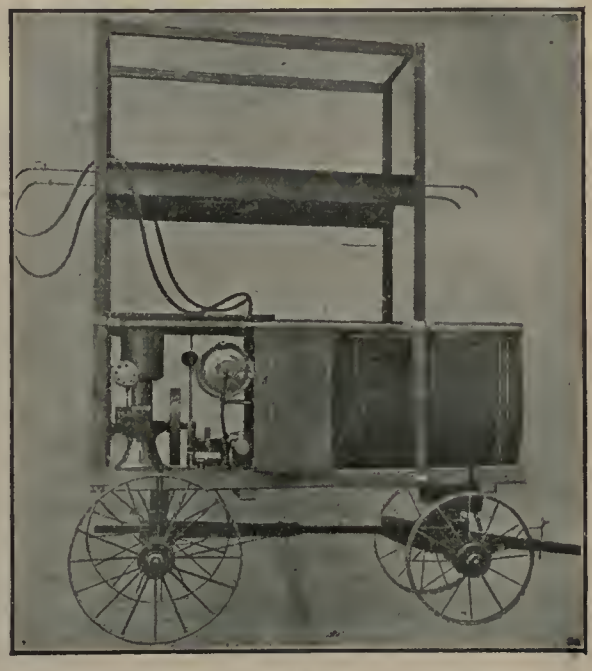
Finally the **outstanding** characteristics—the **exclusive patented features** of the **Model C Spramotor** will **compel** you to pronounce judgment in its favor—For the simple reason that **the sum** of these essentials **cannot** be found in any other sprayer.



Specifications of the Model "C" Spramotor

Bed—4 inch Laminated Maple and Pine, securely bolted together and to the tank, making a perfectly rigid unit, sides cut away for short turning.

Tank—1/4 clear Cypress, curved and dowelld staves, ends and top tongue and grooved, preventing dest.

Caboose—Entirely covering Engine and Pumper; with oak frame, metal cased doors.

Derrick—Of best straight-grain, clear wood, tongue and grooved floor. In six pieces. Large enough for two men to operate. Can be removed in one minute.

Engine—2 1/2 H.P., 500 R.P.M. Upright Hopper Cooled; simple and effective. Controls gas supply and spark.

Motor—All Brass, Individual Ball Valves, with Patent Cages. Automatic Compensating Plunger' Entire Pump and Connections of Brass. Renewable Plunger Tube.

Suction Control—3-Way Brass Cock at Tank Outlet, with index lever to charge air tank with compressed air, to drain out tank or shut off supply to motor at will.

Pressure Regulator—Automatic; regulating pressure by stopping pump, engine runs idle. Only pumps up required pressure; no loss through leaky safety valve. Steady pressure, from 175 to 200 or over, as desired. Runs in oil; no attention required.

Clutch Control—Operator can lock out clutch, and start engine without load.

Agitator—Rotary from Engine, operates when motor is idle. Detachable through brass plug in front end of tank. Keeps suction screen swept clean.

Pressure Tank—12 gals. capacity. Of galvanized steel. When filled with compressed air forms a complete cushion for motor, and prolongs life of machine.

By-Pass and Emergency Valve—In top of tank, locked to desired pressure; preventing, in case of accident, excessive pressure developing. Operates only at 50 lbs. greater pressure than Automatic regulator.

Hopper Screen—Holding two palls, with brass screen and wooden frame, fitting into opening in tank.

Tank Filler—Operated by Spramotor, will fill tank with water in ten minutes, transfer mixtures and lift water 30 ft

N.B.—There's a Spramotor specifically built to suit your spraying needs whatever they may be. Write for Catalogue.

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SPRAYING
A Profitable Investment

is the name of a booklet of over one hundred pages, compiled from the bulletins issued by the Government and Agricultural Colleges, regarding the life history and method of exterminating the various insect pests and fungus diseases, that are responsible for enormous losses each year to the fruit growers, farmers and gardeners of this country.

The importance of getting this information into the hands of those who are most interested in the extermination of these pests, was realized by the Insecticide Department of the Sherwin-Williams Co., and as a result, this concise and practical booklet has been published for free distribution. It gives complete information regarding the most important pests, and a table showing the most efficient method of exterminating them. The booklet contains about fifty illustrations which will enable a person to distinguish the particular pest that is destroying his crops.

Some of the spraying preparations that are advocated by the authorities are manufactured by the Sherwin-Williams Insecticide Department and complete information is given regarding them.

A copy of this booklet will be sent, free of cost or obligation, to any person who sends their address to our Insecticide Department.

THE SHERWIN-WILLIAMS CO.
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MANUFACTURERS OF INSECTICIDES
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have San Jose Scale, living or dead, upon it, as well as any other injurious insect named in the Injurious Insect, Pest and Plant Disease Act of 1911, will be destroyed or shipped out of the province at the expense of the consignee.

Sixty per cent. of this year's imported stock from Ontario and Quebec had some examples of scale, dead or alive. The nurseryman who knowingly sends infected stock into a district free from that pest, ought to have some greater punishment than merely losing his market. The industry of a great country is imperilled that a few men may for the time being grasp a few more dollars.

A feature of the work of the United Fruit Companies has been the large market found in Montreal for our No. threes. Owing to the late growth of fungus or black spot, a large proportion of our Gravensteins had to be marked No. three, as the companies allowed only clean apples to be packed in their Nos. one and two grades.

These were large well-formed apples, but when spotted, Gravensteins begin to decay very quickly, so it is necessary to find a near-by market.

A few cars were sent to Montreal, and as a fine cooking apple their value was at once recognized by the pedlar trade. Word came back for more, and in all about nine thousand barrels of No. three Gravensteins alone were marketed in that city, at a little over one dollar a barrel net. One of the strong features of the companies is the pushing of our fruit in new markets. They have shipped to date one hundred and fifty-five thousand barrels, of which fifty thousand were placed in Canada and Newfoundland. Their pack is giving universal satisfaction.—M. K. E.

Ontario Fruit Growers' Convention

At the recent convention in Toronto of the Ontario Fruit Growers' Association, P. E. Angle, B. S. A., Simcoe, Ont., one of the largest apple planters in Ontario, described his method of laying out the orchard and setting the trees. He strongly recommended the use of a wire stretched from end to end of the field in order to get the rows straight and the trees evenly spaced in the row.

Prof. J. W. Crow, in his address on "The Selection of Nursery Stock," strongly advocated the low headed tree. He did not see what use a tree had of more than twelve inches of a trunk or eighteen inches at the outside. It is difficult, however, to buy such a low headed tree from nurserymen, so the speaker advocated the buying of one-year-old, unbranched trees. The grower can then make a head to suit himself. Prof. Crow believes it would be a desirable improvement if nurserymen headed all of their trees low, then those who wanted high heads would have only to cut off the lower branches. Mr. E. D. Smith, speaking for the nurserymen, said that they would just as soon sell low headed as high headed trees, but that they had to give what the public demanded, and as yet public opinion had not been educated to appreciate the low headed tree.

BEST SIX VARIETIES

"What Six Varieties Shall We Plant for Profit" was discussed by a number of experts with the various fruits. In apples, J. R. Anderson, M.L.A., Lucknow, recommended Wealthy, Snow or McIntosh, King, Golden Russet, Baldwin, Spy. Much adverse opinion was expressed regarding this list, most of those present thinking that

King and Russet should be eliminated. In peaches, Wm. Armstrong, Queenston, advised St. John, New Prolific, Fitzgerald, Elberta. In pears, M. C. Smith, Burlington, recommended Bartlett, Kieffer, Duchess, Anjou, Box and Clapp. For plums, W. R. Dewar, Fruitland, mentioned Burbank, Bradshaw, Riene Claude, Lombard, Monarch and Shropshire Damson. In grapes, F. G. Stewart, Homer, recommended Concord, Worden, Niagara, Moore's Early, Vergennes, Agawam. For strawberries, Mr. W. T. Macoun, Dominion Horticulturist, Ottawa, recommended Bederwood, Splendid, Warfield, Senator Dunlap, Sample, Buster and Parson's Beauty.

In speaking on "Cultural Methods," Prof. J. P. Stewart averaged the results of one experiment as follows: Apple orchards in sod, 190.2 bushels an acre; mulched, 266.4 bushels; treated with phosphates and potash, 277.6 bushels; with cover crop, 312.9 bushels; nitrogen and potash, 542 bushels; barnyard manure, 637 bushsls. In a second experiment barnyard manure was added in all cases Where a cover crop was sown the yield was 109 bushels an acre; with clean tillage, 145.1 bushels; mulching, 126 bushels. and where the manure was applied directly on the sod, 137.1 bushels an acre. Commercial fertilizers were applied on another four plots. In this experiment the yield on sod was 115.9 bushels; with cover crops, 127.6 bushels; mulching, 129.3 bushels; and with clean tillage, 133.4 bushels.

PEACH DISEASES

On the final morning of the convention, Prof. L. Caesar reported on his investigation on Little Peach and Peach Yellows. This address will be dealt with more fully in a future issue.

The list of resolutions approved of was an unusually small one: The committee on resolutions expressed approval of the action of the Provincial Minister of Agriculture in appointing an Ontario Fruit Commissioner in the west; expressed appreciation of the work of Prof. Caesar; the Dominion Minister of Agriculture was thanked for increasing the number of fruit inspectors; the Provincial Department of Agriculture was asked to take over the appointment and payment of inspectors of insect and fungus pests, this being now in the hands of local municipalities; appreciation was expressed of the work of Transport Officer McIntosh, and it was suggested that his work be made to cover the promotion of cooperation as well. A cordial vote of thanks to Prof. Stewart was added.

DIRECTORS

The following were elected directors: R. B. Whyte, Ottawa; C. W. Beaven, Prescott; W. H. Dempsey, Trenton; Wm. Stainton, Oshawa; W. J. Bragg, Bowmanville; H. T. Foster, Burlington; J. W. Smith, Winona; R. Thompson, St. Catharines; Jos. Gilbertson, Simcoe; D. Johnson, Forest; R. R. Sloan, Porter's Hill; F. M. Lewis, Burford; W. J. Saunders, East Linton.

The twenty-third annual meeting of the British Columbia Fruit Growers' Association will be held at Victoria, January 6th, 7th, and 8th. The association will have a year of good progress to report. The membership will reach nearly eight hundred, and there are sixteen affiliated associations, these being all the fruit growers' associations of the province.

I find The Canadian Horticulturist ever growing better. Its columns are continually full of useful information.—J. L. Mitchener, Vankleek Hill, Ont.

FREE
An instructive 64-page illustrated catalogue
Brimful of what you want to know about the labor-lightening, time-saving features of the most economical and effieient agricultural implements ever invented—

Planet Jr

No. 4 Planet Jr Combined Hill and Drill Seeder, Wheel Hoe, Cultivator, and Plow sows seed accurately and works quickly and thoroughly.

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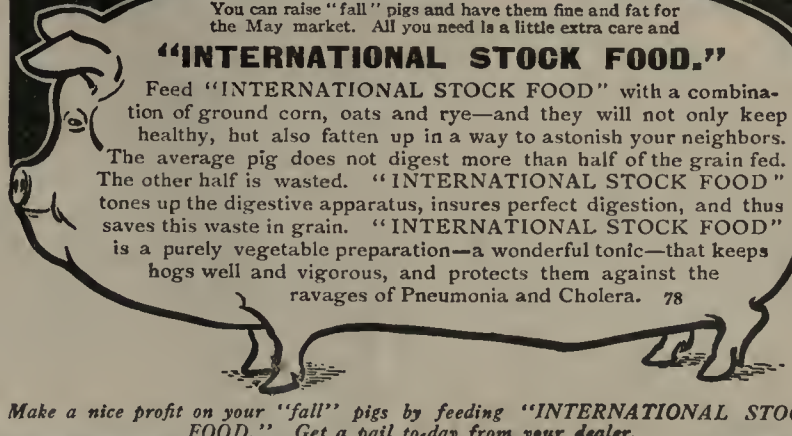

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Feed "INTERNATIONAL STOCK FOOD" with a combination of ground corn, oats and rye—and they will not only keep healthy, but also fatten up in a way to astonish your neighbors. The average pig does not digest more than half of the grain fed. The other half is wasted. "INTERNATIONAL STOCK FOOD" tones up the digestive apparatus, insures perfect digestion, and thus saves this waste in grain. "INTERNATIONAL STOCK FOOD" is a purely vegetable preparation—a wonderful tonic—that keeps hogs well and vigorous, and protects them against the ravages of Pneumonia and Cholera. 78

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Ewing's Reliable Seeds to give you the best crops which your soil, with your tilling, can produce.

EWING'S
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faithfully reproduce the selected grains, vegetables and flowers from which they were grown. They are clean, vigorous and healthy—sure to grow big crops under all reasonable conditions. By doing this for over forty years they have earned the name "Reliable". 15

Get Ewing's Reliable Seeds from your dealer, or write for our handsome illustrated catalogue and buy from us direct.

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McGill Street, Montreal.

Basic Slag

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The Great Fertilizer for all crops

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Sydney, Nova Scotia

The fruit growers of the Annapolis Valley are using thousands of tons every year with the best results. What is good for the Annapolis Valley will be good for Ontario.

Purchasing Dealers Wanted Everywhere

Descriptive pamphlets, prices and all information from our Travelling Salesman for Ontario,

Alexander E. Wark

WANSTEAD, ONT.

Jordan Harbor Station Needs Improvement

Editor, The Canadian Horticulturist,—Allow me to commend the editorial which appears in your October issue relative to the Jordan Harbor (Ont.) Fruit Experiment Station. Both as a Canadian engaged in professional horticultural work in the United States and as a property holder in the Niagara district, I have watched, at first with hopeful interest, but latterly with keen disappointment, the failure of this institution to produce results of value to the fruit growers of the province or of scientific interest to those engaged in agricultural research and education. Your comment on the situation, therefore, meets my hearty approval, and I sincerely trust will bring about a movement for the proper support of the Station. As it has been my privilege to observe the work and organization of this institution from its inception, and to visit it from time to time ever since Mr. Rittenhouse made his first donation and proposals in regard to its establishment to the Department of Agriculture, it is possible that you or your readers might be interested in some of my observations in connection with its founding and work.

The Jordan Harbor Fruit Experiment Station was founded ostensibly for plant breeding, the chief object being to test and develop new varieties and to improve old varieties of fruits and vegetables for the Niagara district and the province of Ontario. Incidentally it was planned to collect data of scientific interest bearing on the problems of heredity as applied to plant life. I do not believe that the efforts of the Station should ever have been planned wholly with a view to limiting it to plant breeding experiments. Probably it was not really intended to exclude culture experiments of various sorts although the horticultural public was given the impression that its one chief object was plant improvement work.

Under such circumstances it was to be expected that the Department of Agriculture would make every effort to secure a well equipped and experienced specialist both in horticulture and in plant breeding to superintend the institution. In a long conversation some years ago with Professor C. C. James, who was then Deputy Minister of Agriculture, I was told that the Department was not limited in the salary it would pay the right man and that it proposed to get the best man in America. Professor James said that the Department was going after a man of the calibre of John Craig, late professor of horticulture in Cornell University, or Dr. Webber, then head of the division of plant breeding in the United States Department of Agriculture, to head the Jordan Harbor work; he added further that he hoped to obtain the services of a man superior in scientific training and at least the equal in possibilities of practical accomplishment to Luther Burbank! (The writer, who had had some training and experience in both horticulture and plant breeding, had had the temerity to apply for the position himself, but in view of the distinguished men under consideration he insisted at the close of the interview on the immediate withdrawal of his name from the list of applicants!) Such an attitude on the part of the Department of Agriculture was most commendable, and, at least at first, an effort was made to secure such a man. Proefssor Craig himself, consulting with the writer in regard to the Station at Jordan Harbor, said that he had been approached and, when he could not undertake the work himself, was asked for aid and advice in the selection of a director.

A CHANGE IN PLANS

In view of the high purpose and ideals which first actuated the Department of Agriculture in its search for a competent superintendent, it was a matter of great surprise that the first appointee, the late lamented H. S. Peart, capable horticulturist perhaps, but absolutely untrained and inexperienced as a plant breeder, should have been its selection. The choice was more fortunate than the Department had a right to expect, for Mr. Peart was remarkably successful in caring for the preliminary work in the development of the Station, in laying out the grounds, superintending the planting and collecting material for future work. To those of us who knew Mr. Peart personally, and there were many, it was a pleasure to note the energy with which he set to work to make the farm a credit to the horticultural industry, and the manner in which he gained the confidence of the fruit growers in his district. Indeed, in spite of his own lack of knowledge of the principles and methods of plant breeding, he might, with proper support and expert assistants, have produced the desired results, for he clearly proved his ability as a capable director in other directions from the very start. Without such training himself, without large financial support, and without experienced plant breeders as assistants, the plant breeding work could not be other than a disappointing failure even had Mr. Peart's untimely death not cut short his work almost at its beginning.

Your tribute to Mr. Hodgetts is well deserved. He has done splendid work for the Ontario fruit growers, but the work of the Jordan Harbor Station is of such importance as to make it impossible for a non-resident director to handle it. Such an arrangement as is now in vogue precludes even the remotest possibility of the Station accomplishing its purpose.

If any serious plant breeding is to be attempted, or any first-class experimental studies of the effects of fertilizers, different methods of cultivation, value of cover crops, systems of pruning, and so forth, are to be attempted, the Department of Agriculture must be prepared to spend money on a scale commensurate with the horticultural interests of the province, bearing in mind the long time necessary for certain lines of work, and the many difficulties confronting the experimentalist particularly in the case of orchard fruits. It must appoint a horticulturist as its director who has received specialized scientific and practical training in both plant breeding and horticulture; it must give the director large powers of discretion in choosing trained assistants and in planning the course of various experiments. The director should be advised by a proper board as to the nature of the information for which he is to seek in his experiments, thus learning the needs of the fruit growers of the province. He should be responsible to some one head, preferably the Minister of Agriculture or the President of the Agricultural College. Yours very truly,

B. S. PICKETT,*
Professor of Pomology
University of Illinois

*Prof. Pickett held the position of Professor of Horticulture, New Hampshire College, from 1908 to 1912. Formerly he was Secretary of the Ontario Agricultural College, and recently he was offered the position of Professor of Horticulture in Macdonald College.—Editor.

The Canadian Horticulturist

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A Few Spraying Notes for Beginners

A. G. Turney, Provincial Horticulturist, Fredericton, N. B.

THE initial cost of a pump and outfit deters many persons from spraying their orchards although it is very small as compared with the profits obtainable as a result of intelligent spraying. In purchasing be sure and

A Barrel Outfit, Unmounted

secure a pump of large enough capacity to do all the work required in the least possible time. Remember that the extra amount of time and labor required to spray an orchard with a small pump, may in one or two years more than exceed the extra first cost of a larger pump. An outfit such as is itemized below is large enough for an orchard of one hundred to one hundred and fifty trees. The catalogue prices, on which there may be a small discount, are approximately as follow:

No. 2, all brass pump (extra if porcelain lined)	$15.00
20 ft. ¼-inch hose, with connectione, stop cock, 9 ft. bamboo extension rod and double nozzle	7.60
Brass wiro strainer	.60
	$23.10
Mounted on barrel on skids, extra	2.50
	$25.60

This amounts to about twenty-five cents a tree first cost for an orchard of one hundred trees. This cost may be charged to the orchard for six years, the life of a pump under fairly favorable conditions, and allowing four dollars forty cents for repairs during that time, then the cost only amounts to five dollars a year for the whole orchard. Spray materials cost about as follows in New Brunswick:

RETAIL PRICES IN FREDERICTON
(APPROXIMATE)

Concentrated lime-sulphur per 40-gallon cask	$8.75
Concentrated lime-sulphur per 20-gallon cask	4.75
Concentrated lime-sulphur per 5-gallon drum	1.75
Lead arsenate, per single pound	.25
Lead arsenate per 5 pounds	.20
Lead arsenate per 10 pounds	.17½
Lead arsenate per 25 pounds	.15
Lead arsenate per 50 pounds	.13
Lead arsenate per 100 pounds	.12
Paris Green per single pound	.25
Bluestone per single pound	.10
Bluestone per 50 ponnds	.08
Lime per 100-pound cask	.00½

Then the cost of sprays ready for use, counting water free are as follows:

WHITE SPRAYS

4 gallons concentrated lime-sulphur at 22c	88c
36 gallons of water	00c
Total cost per barrel of spray	88c

SUMMER SPRAY OF POISONED LIME-SULPHUR

1 gallon concentrated lime-sulphur at 22c	22c
2 lbs. lead arsenate (in 5 lbs. lots) at 20c	40c
39 gallons of water	00c
Total cost per barrel of spray	62c

Note.—The cost of the lead arsenate would be considerably less if purchased in larger quantities (see table of prices).

SUMMER SPRAY OF POISONED BORDEAUX

4 lbs. bluestone at 10c	40c
4 lbs. lime at ½c	02c
½ lbs. Paris Green at 25c	13c
40 gallons water	00c
Total cost per barrel of spray	55c
Time applying spray 1½ hours per barrel. Two men and horse 1½ hours	68c

No provision is made in the foregoing for the cost of mixing solutions and filling up the barrel. In spraying very large trees a small spraying tower of some sort will be necessary and can be very easily made at home at a small cost.

HOW TO SPRAY

Spraying should in nearly every case be done with the wind. When spraying the first side of large trees, stop the wagon or spray cart just as it comes within a few feet of the tree and spray the nearest side as far in and as completely as the spray can be driven; then, drive directly opposite and spray all the central parts thoroughly; then, move just past the tree and spray the last part as far in as possible. In this way, nearly two-thirds of the tree will be covered and when the wind changes it will be easy to complete the spraying from the other side. A very strong wind wastes a little of the mixture, but it is very seldom that there is any need of ceasing operations because of its violence. In spraying small trees it will not be necessary to stop so long at each tree.

Go through the orchard as soon as the spray has dried on the trees, and if you notice limbs or portions of the trees here and there that have been missed,

The Barrel Outfit, Mounted, Used in the New Brunswick Demonstration Orchard Work

Fruit Growers who Took Part in the Discussions at the Important Convention of the B. C. Fruit Growers' Association, at Victoria, B.C.

(See report page 39)

it is well to take out the machine and give these spots an application of the spray mixture. In spraying after the foliage has appeared, people are often misled by the advice that is given to cease spraying just before the leaves begin to drip. It is impossible to spray a large or medium-size tree thoroughly without a considerable amount of drip; hence the first rule to follow is: First, make sure that every leaf and fruit is covered; and, second, try to do this with as little material as possible. The number of trees which one barrel of spray will cover depends largely on their age and size, and also to a considerable extent on the man who is wielding the spray rod.

UNDERSTAND YOUR WORK

To spray intelligently, one should understand the life history of the more important insect and fungous pests. Unless a man knows exactly what he is trying to fight or prevent, he is apt to waste much time, labor and spraying material. Read some good bulletin on the subject.

Promptness is absolutely necessary. For those spraying applications which commence with the first signs of growth in the spring delay is fatal. In most cases at that time of the year, one might as well not spray at all as put it off for two, three, four days, or even more. The object of a fungicide is to prevent and not to cure. Practically all fungicides should be applied before the disease appears so as to prevent its lodgment, and are successful only when they prevent infection. While this is not so true in the case of insects, it is important not to delay spraying for them, since when they are well established and more fully grown, they are very difficult to control.

Absolute thoroughness in all phases of the work is a third requirement. Many growers do their work in a half-hearted way and then complain of poor results. Every portion of the tree should be thoroughly moistened with a fine mist or spray in order that a uniform coating of the same may be left on the tree. The owner of the orchard, who, presumably, is the man most anxious to get good results from spraying, should not trust the work to ordinary labor, but he should do it himself or personally supervise it, unelss he has very reliable help.

WHEN TO SPRAY

For old apple orchards that have never been sprayed, and for young orchards infested with oyster shell bark louse or San Jose Scale, spray before growth starts with commercial lime-sulphur diluted one to nine. This spray may be applied any time during the dormant season of the trees. Strain the concentrate through a fine mesh before using. This mixture acts as a general cleaning spray for old trees. The addition of a little milk of lime will cause the spray to show more clearly on the trees.

Give application number two of poisoned lime-sulphur or Bordeaux mixture when the leaf buds are swelling in the spring, for tent caterpillars, bud moths, cigar case borers and apple scab.

Give the same mixture again just before the blossoms open and after the cluster buds unfold. This application is for the scab and protects the young leaves and stems of the forming fruit. The poison is added for leaf eating insects.

Repeat the application once more when most of the blossoms have fallen and the little apples are still standing upright. Do not wait until the little apples have turned downward, as it is then too late. This is the first application for codling moth and is important in fighting the scab, as it is this application which gives clean fruit.

A fifth application composed of arsenate of lead two pounds, and water forty gallons, should be given a week to ten days later. If judged necessary, lime-sulphur may be used instead of water.

All five applications are not always necessary, and the grower must be guided in their use by the prevalence of insects and fungi and the character of the season. If only one application can be made, let it be number one. If only two can be made, use numbers one and two. If three can be made, use numbers one, two and four.

Spraying Methods in the Peach Orchard

Prof. L. Caesar, O.A.C., Guelph, Ont.

THE chief objects of spraying are to keep trees healthy and vigorous, to prevent the fruit from falling to to preserve it from injury by either insects or diseases. The chief insects that weaken peach trees or attack the fruit in Ontario are: San Jose Scale, plum curculio, peach borers, and shothole borers, or pin borers as they are often called. Several other insects such as aphids, red spiders, tarnished plant bugs, and peach twig borers are present, but seldom require much attention.

The chief peach diseases are: Leaf curl, brown rot, scab or black spot of the fruit, powdery mildew, crown gall, gummosis yellows, and little peach. Of these insects and diseases the following can be controlled by spraying: San Jose Scale, plum curculio, leaf curl, brown rot, scab or black spot of fruit and powdery mildew. It is true that sprays will control aphids, red spiders, and twig borers, but, as mentioned above, these are seldom of much importance, and so would not in themselves justify treatment.

San Jose Scale and leaf curl can both be satisfactorily controlled by a single very thorough spraying of the trunk and branches with strong lime-sulphur, either commercial or home-made concentrated. If the commercial is used, it should be diluted about one gallon to eight, but the safest way to dilute either this or the home-made concentrated is to use the hydrometer as described on pages twelve and thirteen in bulletin 198 of the Ontario Department of Agriculture, and make the strength 1.032 specific gravity or even stronger. The spraying should be done before the buds begin to swell in spring because the leaf curl disease begins to develop with the buds and often cannot be warded off if the spraying is delayed until the buds are almost ready to burst. Damp, cold springs when the buds are swelling and the leaves coming out greatly favor this disease. No one should expect to control it or San Jose Scale unless he will take the trouble to cover every twig and bud and in fact the whole tree with the sprays. In most orchards these two pests are by far the most destructive ones controllable by spraying, therefore this application is much the most important; in fact, it is the only application the majority of our peach orchards receive.

An application of four pounds of arsenate of lead to forty gallons of water to which one or two pounds of freshly slaked lime has been added is of great value against the plum curculio if applied shortly after the fruit has set and before it is half an inch in diameter. It is also indirectly valuable against brown rot, because wherever the curculios feed on the fruit they give an opportunity to the spores of this disease to enter, hence the prevention of such insect injuries means to a large extent the prevention of brown rot.

Whenever scab, or black spot as it is often called, attacks and disfigures the fruit, this can be prevented by a thorough application of the self-boiled lime-sulphur about four weeks after the blossoms have fallen. The self-boiled lime-sulphur is a weak spray mixture, and is the only really safe one we yet know of for peach trees after the foliage is out. The commercial and home-made concentrated will burn unless diluted so greatly that they are ineffective against diseases. The self-boiled is made by putting the lime and sulphur together in a vessel, adding water and allowing the heat generated by the slaking lime to do the boiling. As the details of the method of preparation are given fully in bulletin 198, Department of Agriculture, Toronto, on pages fifteen and sixteen, readers are urged to consult that bulletin, which may be obtained free of cost.

Whenever a grower is troubled with brown rot, the use of the self-boiled lime-sulphur about four weeks before the fruit ripens will be found very valuable. Of course, as previously mentioned, he must have previously sprayed for plum curculio with the arsenate of lead if this insect is present. The self-boiled lime-sulphur clings to the pubescence of the fruit, so has to be applied nearly a month before ripening or otherwise it will remain on the fruit and render it unsaleable. This is the reason it is not applied nearer the time of ripening. Usually it is the white-fleshed and early peaches that are most subject to rot and that would be most benefited by spraying.

THE MILDEW

It is very seldom that growers spray for mildew on the leaves, but if a considerable number of trees are affected the self-boiled lime-sulphur can be used against this disease also. The mildew is a surface feeding disease and can be killed after it appears, whereas spraying for other diseases is intended to prevent germination of the spores and thus keep the disease from getting a start.

The different sprayings that peach orchards may receive and the object of each have now been outlined. Each grower will have to be his own judge as to how many of these applications it

A Power Sprayer at Work in a Huron County Apple Orchard

will be desirable for him to use, but no grower can afford to omit the first application. This should be given to every peach tree on the farm even though it be just freshly set out from the nursery, for such trees are subject to leaf curl, and there is also a possibility that once in a long while a live scale may chance to be found in one of them, whether the nursery stock was grown in Ontario or in the United States.

OTHER THINGS NECESSARY

The value of spraying any kind of orchard is increased by good pruning, cultivation and fertilizing of the orchard. The pruning allows the air to circulate more freely and the sunlight to get through the branches better, consequently the leaves and fruit dry off rapidly after a rain. This drying off is unfavorable to fungus diseases, most of which thrive best where the air is stagnant and moisture abundant. The removal of all dead and dying branches and trees and burning these along with any brush heap and rubbish there may be nearby before May helps against several insects and is the best means known to keep orchards free from shothole borers. Cultivation if continued up to about August 1st, will destroy numerous pupae of the plum curculio and leave no good hiding place for the adults over winter. Moreover it, along with fertilizers, helps to give vigor to the trees and render them less susceptible to attack by either insects or diseases.

NO CURES KNOWN

There is not space to discuss the best methods of combating the different insects or diseases that spraying is ineffective against, but it is perhaps desirable to utter a word of warning here to growers against placing much faith in the so-called cures of peach yellows and little peach. The writer has probably given more careful thought and study to these diseases than any other man in Canada, and would welcome any remedy that would be even partially helpful. He has seen the cases that have been supposed to have been cured and believes that there is not sufficient proof yet that any diseased tree has been cured. It is even doubtful whether the substances used have helped the trees at all; at any rate, at least another year must elapse before any conclusions can be drawn. There is at present only one known way of combating these diseases, namely, to take out the diseased trees promptly, and burn them.

Phosphates promote fruitfulness and early ripening. Furthermore phosphate is far more necessary in the garden and orchard than on the average farm, and an application of phosphates every year is a step in the right direction.

Fertilizer Discussion Continued

B. Leslie Emslie, C. D. A., Toronto, Ont.

A portion of the valuable space of The Canadian Horticulturist is again solicited to allow me to comment on Dr. Dandeno's letter anent "Commercial Fertilizers," in the January issue. Dr. Dandeno repudiates my assertion that he clings to "old and discredited theories" and states that his conclusions are "the result of thirteen years of research work on soils and plants, after eight years of University training for the work." With all due regard for the value of such a training, I still maintain that the old theory of "plant excretion" in its bearing on soil fertility, which Dr. Dandeno espouses, was long ago discredited. True, it has lately been revived by one or two chemists, who, it would seem, desired to obtain notoriety from the promulgation of a theory in opposition to the generally accepted one.

Dr. Dandeno refers to my "definition" of "plant food," but if he will again read my previous letter on the subject, he will find that I refrained from undertaking the definition. It is obvious that plants and animals feed differently, since the latter can only utilise elaborated food substances, whereas plants possess the faculty of building up food substances from simple inorganic compounds. Since Dr. Dandeno likes exactitude in the statements of others, I cannot forbear a criticism of his statement as to the supply of oxygen in the soil; he says, "Now, oxygen will, under these conditions, produce a better crop, and yet it does not enter the plant at all." This statement is, to say the least, ambiguous. If a plant is deprived of oxygen all vital processes are suspended. Oxygen enters the plant through the stomata of the leaves, in the form of carbon dioxide (a compound of carbon and oxygen), and through the roots in the form of water (a compound of hydrogen and oxygen). These two compounds are manufactured into starches or sugars in the chlorophyll cells of the leaves, the product being then transported to the various parts of the plants. For the sake of exactness, it may be mentioned that the prevailing theory is that formaldehyde is first formed from the carbon dioxide and water.

In his reference to the orchard experiments conducted at the Geneva, N.Y., Experiment Station, Dr. Dandeno quotes an isolated case ,which has lately received prominence, on account of the fact that the results obtained were in direct contrast to those from other similarly conducted experiments at other stations. Dr. Dandeno takes exception to my statement that "the majority of

A Well Sprayed Mann Apple Tree that Yielded Large Returns

This tree, in the orchard of R. C. Fowler, Burlington, Ont., had a spread of seventy-five feet and yielded fifteen barrels of No. 1 apples. Two barrels of fruit were blown off by the wind. Only one per cent of the fruit had worms and there was no fungus. It was sprayed with the Niagara Brand lime-sulphur and arsenate of lead.

Oxen as Motive Power in a Nova Scotia Orchard. A Barrel Sprayer at Work

fertilizers are of mineral origin," to which statement I still adhere. Mineral phosphates are more extensively employed than any other fertilizer material, and then basic slag, the potash salts, sulphate of ammonia and nitrate of soda are all mineral fertilizers. Although the latter may have been produced partially through the agency of organisms, it certainly contains no organic matter.

Dr. Dandeno's assertion that I referred to the soil constituents as "hash" is not correct. I did not do so—not even metaphorically.

Like my opponent in this controversy, I am quite willing to allow the plant to "pronounce upon the value of a fertilizer." If the farmer finds that the use of fertilizers increases production, he will continue their use, even though he may never be able to define "plant food."

The Use of Commercial Fertilizers Defended*

R. Innes, B.S.A., Manager Sandside Fruit Farm, Coldbrook, N.S.

FERTILIZERS are to feed plants those elements found by analysis to enter into their composition and which they do not obtain in sufficient quantity from the soil or air; to feed the soil as well as the plants and in the feeding of them to furnish those forms of 'plant food' which experience has shown to be best adapted to perfect growth and yield.

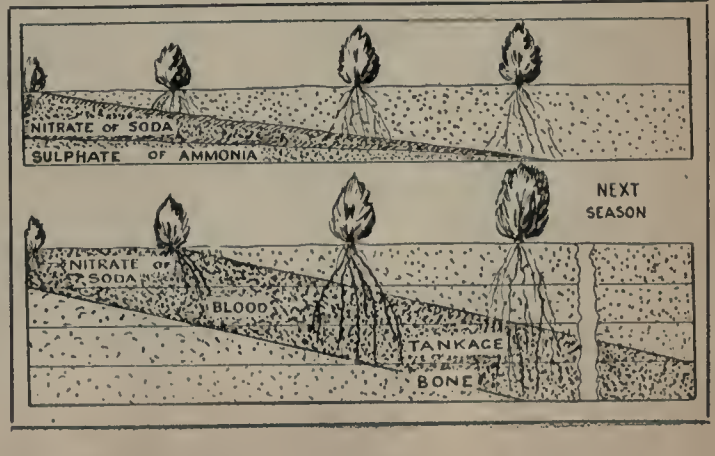
A 'plant food' may be defined as any material applied as manure, whether it is derived from natural or artificial sources. Its value is determined by its percentages of the three essential elements, nitrogen, phosphoric acid and potash, and the state of combination in which these elements are held over or in other words—their degree of availability.

The "degree of availability" of the plant foods contained in any mixture is the most important factor to be taken into consideration, when comparing the value of two fertilizers of the same analysis. The guaranteed analysis does not in any way signify what materials are used to obtain the percentages of nitrogen, or ammonia, available phosphoric acid or potash claimed to be present. It is generally admitted by those who look at the matter in a fair and square way that a mixture in which the various plant foods (with the exception of potash) are derived from different materials furnishing the same essential element but with varying degrees of availability is by far the most satisfactory and most economical for general use. The adjoining cut will illustrate this point:

In the upper section of the cut the reader will notice that two materials, nitrate of soda and sulphate of ammonia, are indicated as sources of plant food nitrogen. These materials are purely nitrogenous in nature, so far as 'plant food' is concerned. No matter whether these are applied singly or together they are very readily available: that is, the plant food furnished by them is in such a state that it is taken up by the plant almost immediately the material is applied to the soil. A plant or crop is indicated in four stages of its growth while the shading graphically represents the amount of 'plant food' at the plants' disposal during the whole season.

Owing to the high degree of availability of the two salts, nitrate of soda and sulphate of ammonia, they will give the plant a good start; but, as the season progresses their effect is gradually diminished (as indicated by the shading) and as a result the plant has to do without one of its most important foods—nitrogen—at the time it is filling out, or producing its fruit. A fertilizer furnishing nitrogen solely in this form as a good many of the home mixtures which are recommended by those solely interested in the sale of certain raw materials do, cannot be considered an economical or satisfactory one to use, not only on account of the lack of desired plant food at certain stages of the plant's growth as already pointed out, but owing to the obvious necessity of having to apply such materials regularly either during the growing season or year after year in order to receive any benefits whatever. No beneficial effect is carried over from one season to the other when such materials as the above are used alone.

On the other hand you will notice by glancing at the lower section of the same cut, that it is quite possible to remedy the above state of affairs providing we demand our mixtures to be composed of certain materials. Here we have represented a mixture in which the nitrogen instead of being derived solely from the in-organic sources, nitrate of soda and sulphate of ammonia, is obtained from a mixture of organic mater-



*This article by Mr. Innes is intended as a reply to the article on "Common Fertilizers," by Dr. J. B. Dandeno, of Bowmanville, Ont., that appeared in the November issue of The Canadian Horticulturist.

ials with a sufficient quantity of inorganic salts, to make the effect of the whole equally as immediate.

The reader knows that the nitrogenous materials such as blood, tankage and bone are not so readily available as the nitrogenous chemicals, owing to the fact that they must necessarily decompose to varying extents in order that their contained plant food may be liberated in forms that may be readily assimilated by the plant.

Bearing the foregoing points in mind, the reader will appreciate at once the economic and permanent value of a mixed fertilizer in which an essential 'plant food' element is derived from different materials which liberates same gradually and at all times needed, which ceases to liberate it when not required by the plant and which carries the natural surplus, that is what is not taken up by the crop to which it is applied, safely over till the next season for the benefit of crops which are to follow:

In brief, the process is as follows: The nitrate of soda owing to its immediate effect, gives the plant a good start and, during the time it is exerting its beneficial influence, the blood goes through the necessary stages of decomposition, whereby its plant food is liberated and when the effect of the nitrate is about over, assumes the responsibility and carries the plant through the second period of its growth, abundantly supplied with essential food until the time when the tankage present is ready to continue the good work and eventually place the plant safely in the hands of the bone, which gives it the finishing touches and ensures it giving the bountiful harvest we farmers so greatly appreciate. The small amount of nitrogen in the bone while sufficient to furnish the maturing plants full requirements is not in excess and will not retard maturity. Owing to the cessation of decomposing processes in the soil the liberation of the plant food in the mixture is discontinued until the next season.

The reader will see that by making a number of applications of a mixture containing the above materials you will year by year gradually raise the level of the excess fertility that is carried over to the next season and thus eventually restore your soil to the original high state of fertility, and only small applications of fertilizer will be required to ensure the constant production of maximum crops, where soil fertility is a deciding factor.

The writer is aware of at least one brand of ready-mixed fertilizers prepared from materials such as the above, which is manufactured in Ontario, and for sale at very reasonable prices to farmers in all parts of Canada. The results farmers are reporting from their use go to prove the truth of the foregoing assertions regarding their superiority over the home-mixtures which as stated above are advocated mostly by those who are only in a position to offer the farmers raw materials.

The mechanical condition of any fertilizing material simple or compound deserves the serious consideration of farmers when articles of a similar chemical character are offered for their choice or when they contemplate "trying" to do their own mixing. The degree of pulverization controls almost without ex-

A Well Sprayed Tree---Not Much Chance for Insects Here

ception under similar conditions the rate and solubility and the more or less rapid diffusion of the different articles of plant food throughout the soil. The poor mechanical condition a farmer obtains with a shovel and a sand screen is without a doubt a great deal to do with the poor results obtained by home-mixing. The fertilizer manufacture is a necessity the farmer cannot do without, and let me say here that it is not necessary for the farmers of Ontario or other parts of Canada to go outside of their own province to obtain their fertilizers. Conserve the fertility of Canadian farms by using fertilizers prepared from materials which have come direct from the farms themselves, including pork packing house by-products, and so forth.

Some of the statements made by Dr. Dandeno deserve special attention. For instance, "the value (of a commercial fertilizer) depends chiefly upon whether the original bacterial life has been preserved and whether the constituents of the fertilizer are favorable to the development of nitrifying bacteria of the soil and to those organisms which prey upon plant excretion."

To the writer this seems a very rash statement. Materials that are recommended for use in home mixing certainly have no bacterial content, but it would be hardly fair to say that the shortcomings of this practice are altogether due to this fact. In the manufacture of high grade mixtures such as indicated in the illustration here published, the raw materials have necessarily to be heated to high temperatures in order to extract the fat, which would be a decidedly harmful ingredient in a fertilizer, and are then dried in such a state that insures them from spoiling due to bacterial action. When the mixture is applied to the soil, however, it becomes subject to bacterial action, depending upon the bacterial content of the soil, and these organisms render the essential elements in the fertilizer available as plant food. Other than the method of supplying cultures of bacteria for inoculating the seeds of legumes there is no practical process at present in use for providing the right kind of bacteria for soil inoculation. It is questionable whether the 'original bacterial life,' even though it were preserved, would have any beneficial effect in a fertilizer, and most certainly the value of a fertilizer which is primarily a source of 'plant food,' does not depend upon its own biological characteristics.

"The use of commercial fertilizers has been one of the most baffling questions with which the farmer and fruit grower has had to contend." The writer thoroughly agrees that it is a 'has been.' The farmers of Ontario particularly have been slow to realize the advantages to be derived from the use of such materials, but it is evident that they are awakening in this regard as more and more commercial fertilizer is being used each and every year. We need to bear in mind when placing our orders for fertilizer that it is the analysis of the material offered that should be taken into consideration and not the brand name or so many dollars and cents. The brand names, "Potato Special," Early Vegetable, etc., do not amount to anything and the amount of dollars and cents will vary according to the amounts of plant food in the mixture. For instance, a three-eight-six (meaning three per cent. ammonia, eight per cent. available phosphoric acid, and six per cent. potash) will not cost as much as a four-eight-six or a three-eight-ten, but more than a three-eight-five or a three-six-six.

(To be continued)

A Garden Where Beautiful Effects are Produced

F. Brooks, Barrie, Ont.

STANDING almost, if not quite, without a rival among the gardens of Barrie is that of Mr. J. H. Bennett, who has evidently adopted as his motto the maxim so often heard but not always followed, "Beautify your home." In doing this he has achieved three telling results: He has found pleasure in the work, he has delighted his neighbors, and he has caused the town to pride itself on having such a burgess in its midst.

The Home of Mr. Bennett. No. 1.

Mr. Bennett is an enthusiastic student of floriculture. He is a master of detail in the selection of his plants, and in everything, indeed, that pertains to flowers. Lavishly liberal in the distribution of the choice products of his garden, he is an example of the true horticulturist.

His garden, which covers a large area, two hundred and sixty-four feet by one hundred and ten feet, is so situated that it obtains plenty of sunlight, and yet possesses many a shady spot. It affords a splendid opportunity for making experiments with various novelties, and of these there is a large collection.

In the layout of the grounds, landscape lines have been closely followed. The beds are arranged in an irregular yet most attractive manner, with shrubberies and borders surrounding the lawn. In the garden proper, however, there is little attempt at scenic effect, save that which is given by the beauty of the blooms, which are in many cases the finest that can be produced.

As one walks through the garden, many a choice variety of the different plants is encountered. Here the majestic beauty of numberless peonies—there being nearly two hundred varieties, including Baroness Schroeder, La France, Mignon, Primevere, and many other rare ones—stand out distinct. There a mass of the most delicate irises catch the eye, while the campanulas and larkspurs rivet one's attention as they unfold their glorious blooms in unrivalled excellence.

It was with an entry of nine exhibits at the Toronto Horticultural Society's Show last July in the classes for peonies, larkspurs, and campanulas that Mr. Bennett scored a remarkable success, winning seven firsts, including two silver medals, a second, and a third—abundant evidence of the excellence of his blooms.

A small green house has proved a great success. It is used for the propagation of annuals and other plants in the spring without heat, thus supplying the place of hot beds and cold frames; and when everything is planted out it is stocked and used for the growing of tuberous begonias, gloxinias, and such plants as will do well under these conditions.

Tulips, hyacinths, narcissus, iris (both German and Japanese), paeonies, roses, larkspur, phlox, asters, sweet peas, gladioli; in fact, almost every well-known perennial and annual, are found in the garden; for only a small portion of the garden plot is used for vegetables.

Mr. Bennett has set an example to others that they might well imitate and that he may have still further success and pleasure in his efforts is the sincere wish of all who enjoy the privilege of a visit to his beautiful garden and home.

A speedy and convenient hedge effect can be produced by posts, painted green, planted six feet apart, with strong wire fence, four feet high, between. Plant Virginia Creepers at foot of each post, and at two feet centres between.

Peonies, Iris and other Flowers in Mr. Bennett's Garden. No. 2.

Mr. Bennett Superintending Operations in His Garden.---No. 3.

The Window Culture of Bulbs

R. S. Rose, Peterboro, Ont.

EASTER bulbs should now be in and coming forward. Watch them; if they are coming along too fast take them out of the warm sunny window, and place them in a cooler window. They will then remain stationary. When you want them to come into full bloom bring them back to the full heat and sun of the window, which will bring them out to perfection.

The varieties that have given us the most satisfaction for pot culture, are:

Daffodils: Von Sion, Incomparable, Poeticus (Pheasant's Eye.)

Hyacinths: Single or Double (all mixed colors.)

Narcissus: Paper white.

Jonquils: Common single, sweet scented or common double.

Chinese Sacred Lily.

All of these we grow in pans, with the exception of the Chinese Lily, which is grown in a bowl of water and pebbles. Narcissi can be grown the same way, and Hyacinths in water, using the regular bottle. We personally like the pan culture the best, one reason being that it is easier to give them to our friends when grown that way. The shallow pan I think gives better results than do the ordinary pots. I do not mean by this that the bloom will be any better, but that the plant will appear to better advantage, and also have a more natural look.

Any good florist's bulb catalogue will give you an idea as to how many bulbs will go to each sized pan. From these you can judge for yourself. On no account put in more bulbs than what the catalogue calls for, for as a rule it will be the limit, and the pan cannot furnish nourishment for more.

As to the soil it is well to make as good a compost as possible. Old decayed turf or virgin loam mixed with some leaf mould, sharp sand and a little bone meal, suit all varieties of bulbs very well.

After planting put pans in a dark, cool place, free from frost, such as a dark corner of the cellar. Water when needed, that is when the soil seems dry. Do not bring pans to the light until well started, the leaves being from one to three inches high. This will take six weeks or more. One can have bloom throughout the whole winter by bringing your bulbs forward in relays.

A Pot of Bulbs Ready for the Window

Flower Jottings

About fifty years ago one might travel all day long, up and down our concessions, and hardly see a flower growing. Now you will hardly find a farm without some flowers, many of them with very pretty gardens.—Chas. Jas. Fox, South London, Ont.

The rose is a gross feeder, and will quickly respond to generous treatment; in fact, all roses to do themselves justice must have a rich soil. A deep rather heavy loam, on a dry well drained subsoil is most suitable, but ordinary garden soil if properly worked and well manured with good substantial manure, grows them very well.

A Section of Mr. Bennett's Greenhouse Showing Gloxinias and Other Flowers.---No. 4.

Everlasting Flowers*

F. E. Buck, B. S. A., Experimental Farm, Ottawa

In our experiments with annuals at the Central Experimental Farm we included this year a collection of Everlasting Flowers. The collection included the most important of the everlastings. We found that these everlastings when judged on a comparative basis had to be rated high amongst the several hundred annuals which were this year tested at Ottawa. Besides this, they have to be allowed points on account of their usefulness for bouquets during the winter. They may be dried for winter use by methods of the simplest kind and when cut at the right stage they retain their attractiveness for long periods.

Helichrysum (Golden Globe)

The seed used was obtained from two firms, Messrs. Sutton, of Reading, England, and Messrs. Vaughan, of Chicago. It was sown on the twelfth and eighteenth of April, and the plants put out into their permanent positions during the first and second weeks of June. The soil in which they were planted was sandy in character, but owing to the large amount of rain that fell it appeared to suit them remarkably well.

All varieties made good growth and were flowering freely before the end of July, many of them by the middle of July. The length of the flowering season for most of them was an average of ten weeks, while some varieties of the Helichrysums bloomed during twelve weeks, and would have probably continued in bloom two weeks longer had it not been that they had to be pulled up early in November to make room for other things. The Gomphrenas succumbed to the early frosts, but the Ammobiums and Helichrysums were but slightly affected by frosts ranging from four to eight degrees.

The following order in which they are here discussed coincides with that in which they should be placed with regard to merit. It should be mentioned that the Gomphrena (Globe Amaranth) is the only one of these Everlastings which has a common name.

Helichrysums: These included Sutton's Golden Globe, Silver Globe, Fireball, pink and cream shades, and large flowered mixed. In our opinion the best three are the Golden Globe, Fireball and a white one from the mixed packet. They grew to heights ranging around four feet six inches to five feet, and were encouraged to further growth by repeated cutting. It is generally considered that these plants do best in sandy loam, and judging from the fact that they grew with us this year much higher than usual, it is safe to assume that they will do well in soil of even less than average quality if it be well watered.

Acrocliniums: The acrocliniums are often placed under the genus Helipterum. These both for bedding and for cutting are in some ways superior to the Helichrysums. The varieties are, double rose, single rose, and single white. There is very little difference between the single and doubles, both being as a matter of fact mostly semi-double. The variety single rose is of a particularly pleasing shade of pink, and either by itself or mixed with other everlastings is really attractive and pleasing. These plants are benefited by judicious cutting, and used either for that purpose or for bedding they are eminently satisfactory apart from the fact that they are everlastings.

Rhodanthe (Maculata)

Gomphrena (Globe Amaranth)

Rhodanthe is the second of these everlastings, which belong to the genus Helipterum. More accurately stated, Rhodanthe is used as a synonym of Helipterum. It is graceful in habit of growth and the nodding heads on long pedicles retain their grace when dried. Its rose pink color is pleasing. Its blooming season is not quite so long as the two former plants. It grows about one foot high and is rather fragile in appearance.

Ammobium is our fourth everlasting, and this variety is known as alatum. Its habit of growth as a plant is straggling and the broadly winged branches gives it a distinctive appearance. The flowers are pure white, rather small, but pleasing in the effect they produce in bouquets.

Gomphrenas: Our fifth flower does not belong to the family Gompositae, as the four former Gomphrenas known as Globe Amaranths, and belong to the family Amaranthaceae. We grew six varieties and recommend these three. G. globosa roseo, G. globose rubra, and G. Haageana aurea superba. These are tender to early frost, which takes all the color out of the flower heads. Both growing and when cut the flowers have a rather stiff appearance.

Helipterum Sandfordii is the only other everlasting tested and cannot be recommended to the same extent as the others. When growing it very much resembles a dwarf type of golden rod, and is not at all attractive. It has, however, some value in a bouquet of dried flowers, as its bright golden color is pleasing. Its blooming season was not more than eight to ten weeks, and its height about one foot.

*An address delivered at the recent annual convention of the Ontario Horticultural Association.

An Everlasting Flower, Acroclinium

My Favorite Flower*

Mrs. A. R. Muir, Port Dalhousie, Ont.

It is most difficult to decide which flower is the ideal of my fancy—there is such an extensive range and galaxy of floral beauties distinctively attractive in color, form and growth; they display such artistic excellence, such superior traits of loveliness and refinement of expression. Every flower has its own distinct character and facial expression, its own questionings and contentedness —or, if not suited to its environments, it will show its discontent immediately: Is it not so? Have you not noticed a neglected plant with its expression of dejection? It has given up trying to be bright and cannot thrive on starvation and non-support. Plants and flowers tended with thoughtful care by one who loves their every habit, form and hue will not refuse to flaunt their beauty in thankful gratitude.

I hesitate to single out one special flower, as my heart yearns to enfold them all as especial favorites. However, my choice is the fragrant violet, with its royal hues. It is a much-loved flower and a greatly-sought-after and popular addition to one's toilet. It is adpated for the decoration of the palace and the cottage, the sick room and the garden-of-rest. Our deferential thanks are due to the "One who paints the wayside flower." In sickness and health, in poverty and wealth, the violet comes as a peaceful and tender messenger.

Flowers are said to be "God's smile upon earth." It is said that in time our expert scientists will perfect the Corollaphone, and that our garden flowers will sing to us their shades of color, giving out various notes, each separate colored petal a distinct tone. With the perfume of our garden, the musical harmony will be complete. "Come and hear my garden sing" will then be our friendly invitation.

CULTURAL METHODS.

In the spring the soil in my garden is dug and pulverized and mixed with wood-ashes, and ashes from the burnt garden refuse, and decayed leaves. The violets are planted and frequently watered until established in growth, the beds kept free from weeds and the soil, a sandy loam, stirred occasionally. This is all that is required for an abundant bloom. The bed, being permanent, is left the rest of the year until the autumn, when a few leaves are spread over the bed.

When spring ushers in her balmy days I remove the covering and renew the wood-ashes as a fertilizer. I grow many varieties of the wood violet also with the greatest success, treated as the English kinds in every instance. The last plant to bloom is a wild white perennial violet flowering in August. The violet plants are grown on a southern exposure.

Treat your floral friends with thoughtful attention and they will return that kindness a thousandfold.

*One of the essays that competed for the special prizes recently offered by Messrs. Hermann Simmers, of Toronto, and R. B. Whyte, of Ottawa, for the subject, "My Favorite Flower and How to Grow It."

Varieties of Paeonies

R. B. Whyte, Ottawa, Ont.

The following is a list of the best twelve varieties of pæonies, regardless of cost. In this list, P. after the name, means that the variety has a sweet perfume.

Marguerite Gerard, P.: flesh color, creamy white centre.

Marie Crousse, P, P.: globular flower, salmon-pink.

Festiva Maxima: white, tipped with carmine.

Asa Gray, P.: salmon-flesh and carmine-lilac.

Therese: flesh-shaded pink, very large, flat flowers.

Mlle. Leonie Calot, P.: soft flesh color.

Marie Lemoine: sulphur-white shaded chamois, slightly tipped with carmine.

Martin Cahuzac; crimson-red to maroon, very dark.

Mons. Jules Elie: pink, shading darker at base of petals, very large.

Albert Crousse: deep pink, large.

Madame d'Hour: carmine-pink, very free bloomer.

Grandiflora Nivea Plena: white, centre sulphur and salmon, carmine stripes.

The foregoing twelve varieties can be laid down in Ottawa from France for ten dollars.

TWELVE FIRST-CLASS VARIETIES

Festiva Maxima: white, tipped carmine.

Mlle. Leonie Calot, P.: soft flesh color.

Madame de Galhau, P.: flesh-pink, shaded salmon.

Livingstone, P.: soft pink.

La Tulipe, P.: flesh-pink to white, carmine tips.

Duc de Nemours, P.: sulphur-white.

Charlemagne: creamy-white, shaded chamois.

Felix Crousse: bright carmine.

Modele de Perfection, P.: pink, shaded rose.

La Rosiere, P.: creamy-white, straw colored centre, very sweet.

Avalanche, P.: milk-white, creamy centre.

Couronne d'Or: creamy-white, some petals bordered ermine.

The above twelve varieties can be laid down in Ottawa from France for six dollars.

Good varieties of Pæonies, which can be bought locally for twenty-five cents each, include:

Rosea Elegans: soft pink, shaded salmon.

Duke of Wellington: sulphur-white, fragrant, free bloomer.

Queen Victoria, P.: white, cream centre.

Festiva Maxima: white, tipped carmine.

Officinalis rubra: crimson.

Officinalis rosea: pink.

A Night-Blooming Cereus

The plant here shown, grown by Mrs. W. H. Hill, of Peterboro, bore several blooms which came into flower one at a time several nights apart. These flowers are very beautiful but transient, lasting only a few hours. They begin to open between six and eight o'clock in the evening, are fully expanded by eleven and by three or four in the morning are closed.

Floral Hints for February

R. S. Rose, Peterboro

Above all things, now is the time to send for all the catalogues. Look at the back of any of the magazines, such as The Canadian Horticulturist, The Ladies' Home Journal, Saturday Evening Post, and others, for addresses, and get all the floral catalogues they advertise. It won't cost you anything and they will more than amply repay you for the trouble of sending for them. After looking through the catalogues, put down what seeds, plants, and so forth, that you want, then draw out a plan of the garden, and stick to it. If you have kept notes of last year's garden, look them up. Have them before you always. By doing this you will know what you have failed with, and will not make the same mistakes over again. Always keep a copy of your order so that you can refer to it each year, as you order fresh seed. Opposite each item on order copy make notes as to how your seeds have done, how tall they have grown at full height, and color and bloom, and when and how long the bloom lasted. If this has not been done, try it this year and you will see how much easier it will be to order and plan out the garden next year.

Here are a few don'ts that I saw in an article written by Miss Frances Duncan for February, which I cut out and always refer to. This is pasted in front of my garden scrap book. This book is full of all kinds of odds and ends regarding flower culture. These don'ts are not only for beginners but for all amateurs:

1.—Don't try for bargains in plants; get good, carefully packed stock from a trustworthy, well-established firm.

2.—Don't begin your garden experience with extraordinary novelties. Such plants usually require expert care to bring forth anything but disappointment.

3.—Don't send in your order the last minute and expect to get the choicest stock.

4.—Don't try too many sorts, nor plan too large a garden. A few plants well grown and a small garden well cared for are better than many unhappy plants or a large area.

5.—Don't slight the preparation of the ground.

6.—Don't economize on manure.

7.—Don't use any but well rotted manure. If that is not available get commercial fertilizer.

8.—Don't fail to find out all you can about the soil.

9.—Don't forget to order manure. Get it as early as you can.

There is not much time left to make your plans, so get busy. March is the time for cold frames, and once these are started things will come along so fast and crowd you with work that you will not have time to think how to plan your garden. So, do it now.

A Glimpse into the Prize Garden of R. W. Rewbotham, St. Thomas, Ont.

Simple Sprays for Flowers

A. V. Main, Ottawa

The flower catalogues are nearly all overflowing with sprays, insecticides, and the latest spraying devices, yet fine young fruit trees, shrubs and plants suffer considerably from the injudicious application of some timely solution. This is especially the case with city people, and enthusiastic suburbanites, although the grower who is engaged in commercial gardening also often suffers in this way. The best sprayer I can recommend for amateurs, small growers, and even those who have only a few plants in the house is the garden syringe.

It is a good old stand by, and could well afford to be lauded a trifle more. Bucket spray pumps, the sprayers and others have not as yet altogether supplemented the effective and reliable syringe. It is convenient, works well, and is of moderate price. It is best to buy a good one. One having heavy brass and a nozzle spray, with two other fine sprays attached, may be obtained for from two dollars to four dollars and a half. Just get one and find its value for spraying your rose bushes, the fruit trees, and keeping the green flies that molest your house plants in check. With a can and your mixture and the syringe in your hand, you will find it a pleasurable gardeing duty to rid some infested bush or climber of insects. Sulpho-tobacco soap is splendid for foliage house plants and Nikoteen is recommended as a good cleanser and preventative of insect life.

I am sometimes asked what I consider the best home made spray for house plants, and outdoor plants that are attacked by red spider, thrip, caterpillars, aphis or green fly, plant louse, mealy bug, or other similar pest. For convenience and economy I would recommend as a preventative to the amateur grower, one ounce of any ordinary kitchen soap dissolved in a gallon of water. To this add a wineglassful of coal oil or paraffine. Keep this well irritated with the syringe while application proceeds. In the town or city, or where gardens are polluted with the refuse from smoke stacks this simple remedy is a wonderful cleanser of foliage. It adds much to the benefit of the smaller fruit bushes.

In my experience I have found the mixture given by Mr. R. S. Rose in the January issue of The Canadian Horticulturist, of one cupful of coal oil to a gallon of water, too strong for sprinkling house plants. With a syringe and a pail of solution keep at bay these insects that disfigure plants, particularly your half-dozen fruit trees or currant bushes. If you are an enthusiast get this old time sprayer. The more you use it the more you will value its assistance.

Vegetables and Their Sprays

Prof. E. M. Straight

WHAT is new in sprays? Not much, and yet everything is new. We sometimes fail to realize the newness of spray science! During the past year, despite our eagerness for that which is new, we have found little, actually belonging to the year, upon which the stamp of genuine worth may be placed.

Bordeaux mixture and paris green, the oldest of our spray compounds, date back only a few years. True there were spray mixtures before that time, and for some of these, remarkable properties were claimed; but they were poorly adapted to the purpose for which they were designed. For example: Hemery, a French nurseryman, made a compound which was intended to kill mildew on peaches. It was made as follows:

Aconite branches and tubercules	1 kilogram
Water	4 liters
Pigeon dung	25 liters
Urine	1 hectolier

Again, that of Mr. Yates of Albany, N.Y.:

Wormwood	1 handful
Rue	1 handful
Virginia tobacco	2 handfuls
Water	2 pailfuls

Such mixtures as these were abundant enough, but it was not until 1885 that there appeared unmistakable evidence, based upon experiment, that a substance had been found which was a specific against the grape mildew and other fungous diseases.

The following from Dr. Lodeman is of especial interest: "In south-western France, in the maritime department of Gironde. is situated the city of Bordeaux. It lies near the western border of a large horticultural district of which the grape is by far the most important fruit. It is here that the downy mildew of America first made its appearance in Europe, probably in 1878, and here also it became most severe. It was noticed that a few vines escaped the general attack. These were situated along the highways. It was also noticed in the autumn of 1882 that certain vines retained their foliage in an almost perfect condition. Vineyards in these localities had suffered considerable loss from the stealing of grapes by children and travellers. It had formerly been the custom to sprinkle verdigris upon a few rows of the vines nearest the road, for the purpose of giving the fruit the appearance of being poisoned. Several years befor the the appearance of the mildew, this substance was replaced by a mixture of the milk of lime and some salt of copper. The mixture was of the consistency of cream and of a light blue color. It was then applied to the vines by means of brooms. The design was to apply enough of the mixture to each vine to give it the appearance of being well poisoned. The vines thus treated were the ones that retained their foliage, while the vines further removed from the road lost their leaves. This was the beginning of the Bordeaux mixture."

The currant worm in the east and the potato beetle in the west made the necessity for paris green, or something like it, imperative. To whom the honor of first using paris green belongs is not known It made its appearance somewhere between 1860 and 1870. Its use as a standard insecticide began in the western states. . Applications of paris green, mixed with water, do not appear to have been made during the first few years following the introduction of the poison. It is thus seen that the introduction of spray mixtures and their use are of recent date.

VEGETABLE SPRAYS

The spraying of vegetables is even newer than the spraying of the orchard or vineyard. After much experience in different parts of the country we are forced to admit, barring the potato, vegetables are little sprayed—much less than is supposed by the experiment station. We are learning, however, that quality counts, and that the spraying of vegetables is a factor which may not be neglected if quality is to be secured.

Paris green and Bordeaux mixture still form a combination not surpassed as an insecticide and fungicide in the vegetable world. Paris green has one competitor in arsenate of lead, and bordeaux mixture and paris green or arsenate of lead are the great weapons the gardener has in his fight against insect pests and fungous diseases. With these he is able to wage effective warfare.

Nothing that we have here said is meant to throw discredit on the use of lime-sulphur in the apple-orchard. There it has a place and is destined to replace other fungicides; but even we believe that bordeaux mixture is the better fungicide. It is because of the insecticidal value of lime-sulphur and because there is less danger of spotting the fruit when used as compared with bordeaux mixture, that lime-sulphur is coming into common use. In the vegetable world however, lime-sulphur has little or nothing to recommend it.

BEST SPRAY FOR POTATOES

Our experiments with the various sprays on potatoes at Macdonald College have already been reported in The Canadian Horticulturist. Any person seeing the plots could not fail to be convinced that Bordeaux was the proper spray for potatoes. Lime-sulphur for potatoes was much worse than no spray. The yields told the same story as seen by the illustrations. Between paris green and arsenate of lead for potatoes, we have little choice. Paris green is cheaper and is the poison we use and recommend in our work.

A great deal of exact and interesting work has been done by the experiment station, Storrs, Connecticut, in the spraying of cucumbers and melons. The table shows the result with cucumbers. Melons gave similar results, so that the figures may be taken as an example of spraying vine crops.

YIELD OF CUCUMBERS

Date of Harvesting.	Bordeaux 4-4-50	Check.	Self-boiled Lime-Sulphur.	Commercial Lime-Sulphur 1 to 50
July 11	72 (fruit)	74	102	68
" 14	97	187	177	129
" 18	111	289	160	54
" 21	160	371	112	25
" 25	281	410	91	
" 29	412	711	44	
Aug. 2	875	977		
" 6	1,124	1214		
" 9	1,490	841		
" 13	1,807	679		
" 17	1,881	115		
" 22	1,645	92		
" 27	1,316			
Sept. 1	874			
" 5	605			
" 10	365			
	13,115	5960	686	276

The conclusions arrived at by the station are as follow:

1. Bordeaux mixture is the best remedy for the spraying of melons and cucumbers, but it will not completely control the common diseases of cucumbers and melons.

2. In seasons favorable to the spread of the disease plants that have received three or four applications of bordeaux mixture may be kept alive and in a productive condition from two to three weeks longer than unsprayed plants.

3. In seasons when the disease is not troublesome, or when it appears late in the season, unsprayed plants are usually more productive than those that have been sprayed with Bordeaux.

4. Bordeaux mixture applied to cucumbers has an injurious effect upon the foliage. Applied to melons, the injury is chiefly to the foliage, but seems to retard the maturing of the fruit.

5. Strong Bordeaux is more effective in keeping the disease in check than weak Bordeaux. As might be expected, it also causes greater injury to the plants. Half-strength Bordeaux causes less injury than the full strength mixture.

6. Spraying with a very fine spray and avoiding the formation of puddles on the foliage gives the best results.

Tomato Plants Growing in a House 60 x 200 feet, owned by R. H. Ellis, Leamington, Ont.

7. The sprayings made early in the season seem to cause greater injury than the later sprayings.

8. The various sulphur preparations, even when used at very weak strengths, caused serious burning of the foliage. It is remarkable that the self-boiled lime-sulphur which may be safely used on the tender foliage of the peach, causes serious injury when used on melons and cucumbers. On the other hand, Bordeaux mixture that causes serious injury when used on the peach is the best fungicide for melons and cucumbers.

We have already reported our work with the spraying of celery at Macdonald College. Spraying makes all the difference between success and failure with that crop. Celery is commonly attacked with an early and a late blight. Sometimes both are working on the same plant at one time. These diseases are held in check by Bordeaux mixture. The diseases are very persistent so that the plants must be kept covered with the spray from the seedling stage to the harvest.

The writer carried on a set of experiments in New Brunswick seeking to control the Tomato Leaf Spot. Leaf Spot may be controlled by Bordeaux mixture. If amount of fruit is the only consideration spraying would abundantly pay. We have demonstrated to our own satisfaction that leaf spot tends to hasten fruiting, however, so that where a premium is placed upon earliness, nothing is gained by spraying. The problem seems to be: Does a limited amount of fruit pay as well or better than a larger amount later on?

The most of what we have said is concerning plant disease. Remember that all remedies used in dealing with these maladies are preventive. They cannot cure. In spraying we simply cover our plants in an armor of copper or iron and thus shut out the spores of plant disease. If we spray a plant after diseased, we simply shut the disease in, where it flourishes until the host plant is exhausted.

Bacterial plant diseases, such as cause soft rots, cannot be easily controlled. They are within the tissue and cannot be reached by sprays. Treating a plant so affected would be like spraying a patient suffering from consumption with tuberculin. Mechanical methods, such as digging out the plants and burning them must be employed. The plants cannot be saved, but such drastic methods may hinder the spread of the disease to the remainder of the field.

Plant lice cannot be poisoned. They do not eat, and, therefore, cannot be reached by a stomach poison. Lice suck up their food. They are usually very difficult to control. We may only hope to reach them by means of a contact poison, that is, one that will kill the insect by coming in contact with its body.

The biting insects are legion and have been met by every one. They eat foliage and can, therefore, be poisoned. For these insects arsenic in some form is used and is effective. To sum up, we have: Fungous diseases, bacterial diseases, biting insects, sucking insects. Fungous diseases, controlled by sprays; biting insects, controlled by arsenical poisons; sucking insects, controlled by contact poisons. A description of all these maladies attacking the garden cannot be given at this time.

The best we know for the treatment of vegetables is given in the accompanying spray calendar:

Spray Calendar (Vegetables)

What to Spray	For what to Spray.	With what to Spray	1st Spraying	2nd Spraying	3rd Spraying	4th Spraying	Remarks and Conclusions.
Asparagus	Rust and Beetles	Arsenate of Lead. Bordeaux	After cutting season is over..	As required			A sticker may be necessary.
Bean	Anthraecanose	Bordeaux	As required				Seldom pays
Cabbage	Cabbage Worms	Paris Green or Arsenate of Lead	On appearance of Butterfly	Every 10 days, as required			Sticker necessary
Cauliflower	Cabbage Root Maggot.						Treatment for root maggot not satisfactory
Celery	Early and Late Blight.	Bordeaux	Seedling Stage..	Every 10 days			Plants must be kept covered.
Cucumber and Melons	Bacterial Wilt	Bordeaux	Seedling Stage..	Every 10 days, as required			Plants attacked by Wilt should be burned
	Cucumber Beetles	Various powders					
Onion	Onion Maggot	Found nothing satisfactory					Various compounds have been recommended for pouring in soil. Not effective
Potatoes	Early and Light Blight Beetles	Bordeaux, Paris Green or Arsenate of Lead	When first necessary	10 Days later	10 Days later		Don't use Lime-Sulphur
Squash	Cucumbers and Squash Bug		Seedling Stage..	Every 10 days, as required			
Tomato	Leaf Spot. Early and Late Blight	Bordeaux	Seedlings	Every 10 days, as required			Does not pay for very early fruit
Radish	Club-root Maggots		Applications of lime to soil are useful for club-root. Rotation necessary. Do not rotate with cabbage, turnips or cauliflower				

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H. BRONSON COWAN, Managing Director

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2. Subscription price in Canada and Great Britain, 60 cents a year; two years, $1.00. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amounts less than $1.00.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates $1.25 an Inch. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

7. Articles and Illustrations for publication will be thankfully received by the Editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912	9,988
February, 1912	10,437
March, 1912	10,877
April, 1912	11,788
May, 1912	12,112
June, 1912	10,946
July, 1912	10,986
August, 1912	11,148
September, 1912	10,997
October, 1912	10,971
November, 1912	11,162
December, 1912	11,144
	132,556

Average each issue in				1907, 6,627
"	"	"	"	1908, 8,695
"	"	"	"	1909, 8,970
"	"	"	"	1910, 9,067
"	"	"	"	1911, 9,541
"	"	"	"	1912, 11,016

January, 1913 11,243

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser is this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest baukrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

SPRAYING EXPERIMENTS

The increased attention being given by our agricultural colleges and experiment stations to the prosecution of extensive experiments in spraying (both in the orchard and greenhouse) is only one of the many indications of the great advances that have taken place in this practice during the past ten years. This is not to be wondered at. The increased financial returns which invariably follow thorough, well-timed spraying have been demonstrated so conclusively, the practice is becoming well night universal among our leading orchardists.

This is a season during which the fruit grower who has not already done so should aim to post himself in regard to the latest results obtained by the experiment stations of both Canada and the United States. Speaking generally it may be said that no fungicide has been found that holds diseases in check as well as Bordeaux. One of the chief objections to the process, however continues to be the fact that when showers follow soon after an application of Bordeaux the leaves are likely to be spotted and the fruit russeted by the fungicide. When the apples are sold in barrels this injury is seldom great enough to be of importance.

Lime-sulphur has in most cases proved a satisfactory substitute for Bordeaux. It caues little or no injury and in some seasons controls the disease as well as Bordeaux. Experiment conducted by the New Hampshire experiment station show that commercial lime-sulphur, diluted two to fifty, has been repeatedly used on foliage without injury although a weaker spray is probably desirable. Arsenate of lead is the only insecticide that has proven satisfactory for use with lime-sulphur. For such diseases as the leaf spot the self-boiled lime-sulphur has given good results, but in most cases it has not held other diseases in check as well as Bordeaux and commercial lime-sulphur.

Helpful bulletins and pamphlets dealing with spraying that have reached The Canadian Horticulturist during the past few months and which our readers might well write for, if looking for information on these subjects, include the following among others: "Concentrated Lime-Sulphur Spray," bulletin 115, of the State College, Centre County, Pennsylvania; "Fungicides in the Apple Orchard," by Chas. Brooks of the New Hampshire College, Durham, N.H.; "The More Important and Insect and Fungous Enemies of the Fruit and Foliage of the Apple," by A. L. Quaintance and W. M. Scott, being Farmers' Bulletin 492 of the United States Department of Agriculture, Washington; "Tests of Summer Sprays on Apples, Peaches etc.", being part five of the annual report of the Connecticut Experiment Station, New Haven, Conn.; "Orchard Spraying Experiments," being bulletin number 198 of the Maine Agricultural Experiment Station. Orono, Maine; "Some Common Spray Mixtures," by O. S. Watkins, of the Agricultural Experiment Station, Urbana, Ill; and "Injurious Insect Pests, Fungous Diseases, and Spray Formulae," being circular 58 of the Department of Agriculture, Albany, N.Y.

ADVERTISE THE APPLE

The value of the apple as an article of diet should be advertised more widely. Fruit growers have not awakened to the possibilities of an intelligently conducted campaign of this character. The explanation of the comparatively small home demand for our unequalled Canadian apple, with the consequent prevailing low average prices paid in the home markets, is due to the fact that the Canadian people are not as yet familiar with the value of the apple for dessert and cooking purposes.

For years the milk of the Holstein cow was considered to be lacking in nutritive value. On the other hand the word Jersey carried with it an implication of the highest possible quality in milk. Of recent years the Holstein breeders have been conducting an intelligent, persistent educational campaign through magazines and other mediums. They have advertised that the milk of their cows is more evenly balanced in the nutritive elements of milk than the milk of any other breed of cow. To-day many hospitals are using Holstein milk for infants in preference to other kinds.

Our Fruit Growers' Associations might well take a leaf from the book of the Holstein breeders. Attractive, well colored advertisements of certain brands of apples were they to appear in our magazines and similar mediums would create a surprising demand among our more wealthy class of citizens for this product of our Canadian orchards. We have not begun to develop the home markets as we might.

The Hamilton and St. Thomas Horticultural Societies are to be congratulated upon the success of their efforts, in cooperation with some of their local newspapers, to publish several pages of illustrations of beautiful gardens and streets. The St. Thomas Daily Times and The Hamilton Spectator have both issued splendid illustrated sections showing the homes and gardens of representative citizens. The effect on the public of such enterprise is always beneficial. Officers of other horticultural societies would do well to write to these papers for extra copies of these editions in order that their local papers and their own members may be encouraged to follow these worthy examples.

The citizens of Toronto through their Boards of Trade and similar organizations have been conducting investigations with the object of ascertaining the cause of the increased cost of living. At the same time they have prosecuted a fruit grower who undertook to sell apples in a market stall in quantities smaller than one bushel. We realize, of course, that the by-laws under which such prosecutions are conducted were passed with the object of protecting local taxpayers from competition by non-taxpayers; but nevertheless, the citizens of Toronto should recognize the fact that all such restrictions strengthen the middlemen at the expense of the consumer and thereby add to the cost of living. The elimination of a few by-laws such as the one referred to would have some effect at least towards lowering the price of food products.

For a year or more an agitation has been in progress in Canada which has for its object the placing of traction ditchers on the free list. In December Mr. A. B. McCoig, M.P., of West Kent, gave notice of a resolution in the House of Commons declaring that traction ditchers should be

admitted into Canada duty free. As far as we know there is no opposition to this proposal. These machines are not manufactured in Canada, nor are they likely to be for many years. The Canadian Manufacturers' Association favors the suggestion. As the underdraining of hundreds of thousands of acres of land in Canada is a crying necessity, the Government will serve the best interests of the country if it consents to the adoption of the resolution.

Ontario's Provincial Market Commissioner in Western Canada has reported that Ontario fruit is better in quality than any other offered in Winnipeg and on other mid-central western markets, but that its grading and packing frequently leaves much to be desired. The Canadian Horticulturist long advocated the appointment of a market commissioner for Ontario in order that the defects of Ontario's methods of packing might be brought home more forcibly to the growers by an impartial agent. Now that the facts are being laid before the growers steps should be taken as speedily as possible to ensure Ontario's fruit being laid on the markets in Western Canada in better condition. Ontario is behind British Columbia in this respect, and will continue to be until more energetic efforts are made to bring about an improvement in the apple pack of the province.

The suggestion has been made to The Canadian Horticulturist, and we pass it along with pleasure, that the Dominion Parliament, now in session at Ottawa, might fittingly recognize and advertise the fruit industry of Canada by the adoption of a resolution accepting the apple as the national fruit of Canada. The apple is grown to perfection in Canada from the Atlantic to the Pacific. The quality of the Canadian apple is not surpassed anywhere else in the world. What do our readers think of this suggestion?

That the fruit growers of Lambton county are awakening to their opportunities may be gathered from the fact that they have cooperated recently in the formation of the Lambton Publicity and Development Association which has for its object the development of the latent resources and opportunities of the county. The association has issued an attractively worded and illustrated pamphlet showing fruit and farming scenes in the county. It is entitled, "Come to Lambton County in Sunny South-Western Ontario." Other fruit sections in Ontario might well follow this example. They are not likely to attract settlers and capital until they themselves appreciate their own natural resources and the opportunities which they have to offer to others, and then make them known.

PUBLISHER'S DESK

The front cover illustration of this issue of The Canadian Horticulturist was obtained from a photograph taken in the orchard of Mr. Brimmingcome, of Goderich. Mr. Brimmingcome is one of a number of orchardists who are helping to bring Huron county to the front by their up-to-date orchard methods. An evidence of the success which is attending their efforts was shown by the illustration on the front cover of The Canadian Horticulturist for January.

This issue of The Canadian Horticulturist breaks several records. It contains more pages than we have ever before published, and the volume of advertising carried establishes a new high water mark. We have endeavored to make this issue also of special interest and value to our readers. It is our desire that every success as it is achieved shall only prove a spur to increased efforts for further improvement. Our plans for our March issue are such that we can assure our readers that they will be delighted with it when it reaches their hands. Help us to make The Canadian Horticulturist a credit to the fruit and floral interests of Canada.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

SEAFORTH

At the annual meeting of the Seaforth Horticultural Society the following resolution, which contains a suggestion for other societies, was passed: "Believing that the condition of the property on Main street, between Stewart's blacksmith shop and Kerslake's feed store ,to eb a disgrace to the town of Seaforth ,we urge upon the Mayor and Council to take whatever steps are necessary to have this eyesore cleaned up."

MONTREAL

A prosperous year's record was shown in the report presented at the annual meeting of the Montreal Horticultural Society held recently. Votes of thanks were tendered to residents who had opened their conservatories during the months of February and March. Resolutions of sympathy were tendered to the families of Sir Edward Clouston, Messrs. Wm. M. Ramsay, G. M. Hays and R. Wilson Smith.

The following officers were elected:

Honorary President—Hon. Senator Mackay; Hon. First Vice-President—Jas. Morgan, Esq.; Hon. Second Vice-President—Jonathan Brown; Hon. Botanst, Rev. Robt. Campbell, D.D.; President—D. Lorne McGibbon; Vice-President—Charles B. Gordon.

Directors—Sir H. Montagu Allan, Henry Birks, Esq., B. Hal. Brown, Mortimer B. Davis, H. A. Ekers, Chas. Meredith, Sir Thomas Shaughnessy, A. E. Ogilvie, A. J. Dawes, Sir Hugh Graham, John Stewart, James R. Wilson, L. Payette, C. P. Beaubien, K.C., W. G. Ross, Hon. Nathaniel Currie, D. Forbes Angus, J. C. Macdiarmid and His Worship Mayor Lavalee.

The executive committee were elected as follows:

Robert Burrows, chairman, W. J. Wilshire, Joseph Bennett, C. A. Smith, Geo. A. Robinson, H. Schoning, R. T. Pinkerton, George Trussell, E. J. Hayward, I. Rubenstein, A. Ferguson, W. G. Pascoe, J. Luck, J. Turner, Wm. Ewing, Jr., Geo. Bayles.

Secretary-treasurer A. J. Bowles.

TORONTO

As a result of the change in the Horticultural Societies Act for Ontario, made last year, which enables Toronto to form two Societies, a meeting of the High Park Ratepayers' Association was held, at which the Association was re-organized as The High Park Horticultural Society.

The Society starts off with a membership of one hundred and fifty paid members and a considerable number of associate members ready to continue under these auspices the work formerly carried on without assistance by the High Park Ratepayers' Association. The organization of this horticultural society enables it to procure from the Government in the first year of its operation a grant of $75, and after that a grant as high as $500 dependent on the membership. The plan of campaign including the giving of shrubs, trees and flowers, and awarding of prizes will be put in operation by the officers elected.

The officers elected are as follows: President, D. G. M. Galbraith; vice-president, A. Chamberlin; first vice-president, Wm. H. Reid; secretary, J. H. King; treasurer F. R. Snow. Directors—William Morman, John Harris, R. W. Scadding, W. H. Price, Wm .McTavish, George Stevenson, R. J. Buller, D. Paterson, George Birdsall.

British Columbia Fruit Growers Wide Awake

Matters of not only provincial but of national importance were discussed and dealt with by the members of the British Columbia Fruit Growers' Association at their 23rd annual convention held in Victoria, B.C., January 6, 7, and 8. These included increases in the duty on fruit, the inspection of fruit, transportation problems and similar subjects.

Hon. Price Ellison, Provincial Minister of Agriculture and Finance, congratulated the fruit growers on having the cleanest fruit producing country in the world, a result he attributed to the services of Mr. Thomas Cunningham, the provincial fruit inspector. The cost of fighting infection was too heavy an impost for the industry to bear, and they were justified in their endeavors to prevent infected fruit being brought in. But they must bear in mind that their aim must be to give the wholesaler, and through him, the consumer, the goods he wants when he wants them, and this would be enormously helped by the establishment of cold storage. The growers were urged to encourage the establishment of cold storage plants by subscribing for stock, in which event the provincial government might be induced to give financial assistance.

The growers, the Minister said, had a right to demand a higher import duty on United States produce, in fact to be protected as much as those engaged in any other industry, and the consumer would never notice the difference in fruit. They must keep on asking for what they wanted and what they had a right to ask for till they got it.

PRESIDENT'S ADDRESS

Mr. W. C. Ricardo, president of the Association, declared that the time had arrived to press for better protection for orchards against infected countries and when the home and Canadian markets generally should be kept for Canadian fruit and free from the dumping of produce from other countries. While lower prices must be expected, profits could be raised by closer attention to the manufacture of by-products and the reduction of the cost of production. He corrected an idea that had got about that poor organization had been

(*Continued on page* 50)

SPRAY F

Among the many implements, accessories, chemicals, etc., required by the up-to-date fruit grower, two of the most important are Arsenate of Lead and Lime Sulphur Solution.

By the intelligent use of these two you expect to get fruit free from fungus and insects. The time it takes to spray your trees is the same whether you use good chemicals or poor chemicals.

What Constitutes a Good Arsenate of Lead

A good Arsenate of Lead is one in which the Arsenic Oxid is combined with the proper percentage of Lead Oxid;

That mixes as easily as is consistent with good sticking qualities;

That contains an amount of soluble Arsenic below one half of one percentum;

That can be successfully used with Lime Sulphur Solution (there are but few Leads that can be so used);

That is packed and shipped in the best of packages.

This is the kind you will receive if your order distinctly says "Grasselli Brand" Arsenate of Lead.

The Grasselli Che

HEAD OFFICE and WORKS:
HAMILTON, CANADA

O R G A I N

Time is money.

Therefore, it is to your interest to buy the best Arsenate of Lead and Lime Sulphur Solution on the market.

We invite your inquiries on any point concerning spray chemicals, as well as on the subject of spraying, all of which will have our prompt and careful attention.

What Constitutes a Good Lime Sulphur Solution

The value of a Lime Sulphur Solution is in direct proportion to the percentage of Sulphur contained in it.

Grasselli's is guaranteed to contain not less than 25% Sulphur and tests at least 33° Beaume (59° Twaddell).

Many Lime Sulphurs contain less Sulphur, even though the Beaume (or Twaddell) strength may be the same—33° (59° Twaddell).

Satisfactory results cannot be obtained unless all shipments of Lime Sulphur Solution contain a uniform percentage of Sulphur.

Grasselli's is all thoroughly tested by capable chemists before it leaves the Works. The grower can, therefore, use this brand with a feeling of security.

Grasselli Lime Sulphur Solution is shipped in the best barrels we can procure, on each of which is stenciled the number of gallons contained.

nical Co., Limited

BRANCH OFFICES and WAREHOUSES:

TORONTO, 131 Eastern Avenue

MONTREAL, 27 Dalhousie Street

Quebec Fruit Growers' Annual Convention

THE annual meeting of the Pomological and Fruit Growing Society of the Province of Quebec was held at Macdonald College, Que.

Apples of all sorts, sizes, shapes, and flavors decorated the platform, and a long line of tables at the front of the assembly room of the college. Among these was a plate of freak apples brought by Mr. Peter Reid, Cateauguay Basin, Que. They were Red McIntosh apples secured from a graft on a Ben Davis tree. The result was that the fruit took on the shape and appearance of a Ben Davis apple but maintained the taste and quality of a McIntosh.

About fifteen plates of seedlings that promise a great deal for the future of the apple growing industry in Quebec were shown by Mr. W. T. Macoun, of the Central Experimental Farm, Ottawa. These were mostly from Northern Spies, which so far have not grown very well in Quebec, but these new seedlings, which are really hybrids with another variety, have so far proved themselves much hardier than the ordinary Northern Spy.

Of the varieties of apples shown, the most prominent were the Alexander, Fameuse, Wealthy, McIntosh, Wolf River, American Golden Russet, Scott's Winter, Baxter, Pewaukee, Canada Baldwin, Canada Red (Pomme de Fer), Northern Spy, Blue Pearmain, Bethel and about thirty other varieties.

The president, Mr. C. P. Newman, Lachine Locks, reviewed the results of the discussion at the Dominion convention of fruit growers at Ottawa, saying that he hoped the Government would look into the Cooperative Credit Association system in Europe as it had been asked to do by resolution.

He spoke of the work of the demonstration orchards in Quebec as object lessons to the districts where they are situated. To show the necessity of stimulating fruit production in Quebec he said that less than half the fruit consumed in the province was produced within its borders, although there was a good home and export demand for Quebec varieties. Nova Scotia, Ontario, and British Columbia were all showing greater activity in this direction. "Fruit growing was too much of a side line in Quebec."

EXHIBITION PROPOSED

Dr. F. C. Harrison, principal of Macdonald College, advocated the holding of a fruit and flower exhibition in Montreal.

He introduced Prof. T. G. Bunting, a former assistant of Mr. W. T. Macoun at the Central Experimental Farm, who had taken Prof. Blair's place; Prof. F. M. Clement, lecturer in horticulture, and Mr. W. M. Aikenhead, assistant in the same department, all of whom, he said, had made good records for themselves in their former spheres of work.

Rev. Father Leopold of the Trappist Monastery, who was received with applause, spoke on "Establishing Canneries and Their Advantages in Connection with Cooperative Societies." He made the text of a large part of his address the work done by the recently formed Cooperative Society of Kamouraska which he saw while on a visit to Ste. Anne de la Pocatiere to establish a demonstration orchard.

He told of the cannery at Ste. Anne de la Pocatiere undertaken by the Cooperative Society after it had sold eight thousand gallons of the plums in a fresh state, and found that this was the only method of saving the rest of the crop which were a glut on the market. Very quickly, with the help of Father Athanase, of La Trappe, they organized a canning plant in the old college and preserved in a few days ten thousand pounds of plums, making something like six thousand gallons of preserves. The fruit was put in tin cans processed mostly by hot water, the processing vat having a capacity of five hundred gallon cans at a time. The very best grade possible was put up. The preserving was done with pure white granulated sugar, six pounds of sugar to one gallon of syrup. Mr. Dupuis, the secretary, expected to sell these Damas plums in large cans at five dollars forty cents a dozen, and small cans at two dollars forty cents a dozen. Without the improved cannery the crop would have been a loss to the growers. The speaker insisted on the importance of pure fruit being used, and a label being put on the tins to show who was behind the work as a guarantee of quality.

In the evening an address was given on the "Commercial Handling of McIntosh and Fameuse," by Prof. T. G. Bunting, Macdonald College.

Prof. W. S. Blair described the development of the Annapolis Valley in Nova Scotia as an apple growing centre, and gave it as his belief that it would become a still greater factor as an apple exporting centre in years to come, although they were not now taking any more trees from Canadian nurseries on account of the introduction of the San Jose Scale.

Removal Sale

The Sale of a portion of our Nursery Land at Pointe Claire necessitates the removal of our main nurseries.

This land must be cleared next spring and we have decided to offer the stock at a discount of from 25% to 50%.

All stock is first-class and consists of

Thirty Thousand Fruit Trees of the hardiest varieties.

Ten Thousand Shade Trees.

Fifty Thousand Ornamental shrub and hardy Perennials, Paeonies, etc.

Write at once for complete list.

The CANADIAN NURSERY CO., Ltd.
10 PHILLIPS PLACE - MONTREAL, P.Q.

For the Land's Sake

Use the best Manure and get

Good Crops

For Nurseries, Fruit Growers and Gardeners.

Sure Growth Compost

Makes poor land fertile and keeps fertile land most productive.

Supplied by

S. W. Marchment
133 Victoria St. TORONTO
Telephones: Main 2841; Residence, Park 951

Say you saw this ad. in The Canadian Horticulturist

The election of officers resulted as follows: Patrons, Hon .Martin Burrell, Hon. J. E. Caron, Hon. S. Fisher, G. A. Gigault and A. Dupuis. Honorary president, Prof. W. S. Blair, honorary vice-president, C. P. Newman; president, Rev. Father Leopold; vice-president, C. P. Byers; Secretary-treasurer, Peter Reid. Directors: G. B. Edwards, Covey Hill; J. Crossfield, Abbotsford; G. P. Hitchcock, Massiwippi; Rev. H. A. Dickson, Rectory Hill; A. D. Verreau, Village des Aulnaies; N. E. Jack, Chateauguay Basin; F. X. Gosselin, W. H. Thompson, Hudson Heights; R. Brodie, Montreal. On the committee charged with demonstration work Prof. Blair's departure necessitated another appointment, and Prof. Bunting was elected in his place.

DEMONSTRATOR WANTED

A resolution was passed requesting the Provincial Government to appoint a competent man to act as demonstrator of each experimental orchard. This officer would also accept the office of local secretary of the society's branch in the district, thus combining the two offices. A resolution asking the railroads to look into the matter of trying to induce their employees to handle fruit in transit more carefully was also adopted.

Addresses were delivered by Mr. F. X. Gosselin, Ste. Famille, Que., on "Strawberry Culure," and by Mr. J. C. Chapais, St. Denis, on "Two Orchard Enemies." These led to an interesting discussion. Reports made by Messrs. Ben. Richardson and Henri Cloutier, superintendents of the Demonstration Orchards, as to the results of careful experiments they had carried out, contained helpful information concerning spraying.

Mr. D. Johnson, Forest, Ont., president of the Ontario Fruit Growers' Association, spoke on "Cooperation," and Mr. T.L. Kinney, South Hero, Vt., on "Why I Love the Apple Business." The first address showed that the cooperative societies in Ontario were making great progress. There the growers stuck together and did not allow their societies to become too large. They made large profits for the members and increased their yield of No. 1 apples. A description of how he had gone a step further, cut himself loose from the cooperative societies, and got closer to the consumer by selling to the retailer rather than the wholesaler, and keeping his own travelling man out west to sell his product, created a great deal of interest.

The Jordan Harbor Station

Editor, THE CANADIAN HORTICULTURIST,—Being a former resident of Ontario and of the Niagara District, I was interested in your recent editorial with regard to the Jordan Harbor Station. I have always admired The Horticulturist for the fearless way in which it defends the horticultural interests of the Dominion and the way in which it attacks injustice and inefficiency whenever the opportunity presents itself. Your criticism of the administration of the Jordan Harbor Station, in my opinion, is timely and commendable. The institution has been running long enough to prove its value and has been found wanting.

I have made frequent visits to the station,

Douglas Gardens

Oakville, Ontario

Our Spring Planting List

Is now ready for distribution

It describes and offers a goodly list of

Bedding Plants

Bulbs

and

Herbaceous Perennials

A copy will be mailed to all interested who send names and addresses

JOHN CAVERS

APPLES and CHERRIES

We have a large stock of the leading varieties of these Fruits, both in two-year-old and thrifty one-year-old budded stock. Our Trees are headed moderately low and wintered outdoors.

We have a very fine lot of Dwarf Duchess Pears, and suggest that these make a desirable filler for Apple Plantations.

We shall be pleased to send our expert, without charge, to assist in selecting suitable varieties of Fruits for your plantings, and our landscape department is also at all times ready to help our customers plan Lawns and Gardens for the most pleasing effects.

THE AUBURN NURSERIES, Ltd.

QUEENSTON

SIMCOE (Head Office) OAKVILLE

FIRST FOR QUALITY AND RESULTS

THOMSON'S

VINE, PLANT AND VEGETABLE

MANURE

WM. THOMSON & SONS LTD. CLOVENFORDS

UNRIVALLED

For Vines, Tomatoes, Cucumbers; Flowering, Foliage and Fruit Bearing Plants, Vegetables, Lawns, etc,

The result of many years' practical experience

PERFECT PLANT FOODS

Sold by Seedsmen and Nurserymen all over the world. Also

THOMSON'S SPECIAL

CHRYSANTHEMUM AND TOP-DRESSING MANURE

A Splendid Stimulant Sells Well—Pays Well

Write for our special offer to the Canadian Trade. Also for Agents' Circulars, Pamphlets, etc. to the Sole Makers

WILLIAM THOMSON & SONS, Ltd.

Tweed Vineyard, CLOVENFORDS, SCOTLAND

and during the first few years I was well pleased with its development, and expected great results. Last summer I drove over the farm and had an interesting and illuminating talk with a young man well acquainted with the institution. I was greatly surprised and disappointed in what I saw and heard, for the institution of which I had expected so much, had largely failed. The buildings, orchards and gardens, compared with the prosperous farms of the neighborhood, presented an untidy appearance. Cover crops that were intended to be turned under in the early spring were being ploughed under late in June. Experiments that had been started in previous years had been discontinued, and there seemed to be no well defined program for the future.

It should be understood that this criticism is directed at a condition rather than at any person or persons connected with the institution. I have great personal regard for Mr. P. W. Hodgetts, who at long distance is directing the work of the station, and who has done so much in the interests of horticulture. I agree with you that the lack of efficiency is due largely to the failure of the government to appoint a competent and experienced resident director. The Ontario government in the past has liberally supported the horticultural interests, and it is safe to assume that if the Jordan Harbor Station had produced results it would have been well supplied with funds.

AN EFFICIENT STATION NEEDED

There is a real need for an Experiment Station in the Niagara District. A province so extensive and diversified as Ontario should maintain several such stations for the purpose of studying the peculiar adaptations of the various regions. These local institutions should be more than experiment stations. They should serve the locality in various ways. Few farmers are familiar with the latest discoveries in agricultural science, and what is needed more than anything else and what may be aptly maintained in connection with each of these local experiment stations is a sort of demonstration farm where the latest and most approved practices may be exemplified.

Like many other Canadians in this country, I am proud of the progress that has been made throughout Ontario. We hear many flattering remarks about Ontario and her progressive institutions, and only those who are on the outside can fully appreciate her greatness. It is hoped, therefore, that the Ontario Government will act upon your suggestion and endeavor to bring the Jordan Harbor Station up to the standard of the other institutions and make it of value to its constituency and a credit to the province.—Yours very truly,

C. D. Jarvis,
Director of Horticultural Extension and Research,
Connecticut Agricultural College.

The Story of the Apple

A farmer picked this apple in his orchard
in the west
And put it in a barrel with some others of
his best;
Because they were so splendid he declared
the price must climb
And so he raised his figure on that barrel
by a dime.

The man who bought that barrel stuck a
label on the top,
Then told the interviewers of a shortage in
the crop;

DON'T "MINE" YOUR SOIL—"FARM IT"

"Good Farming" is being able to produce profitable crops each year and at the same time to maintain and even to increase the productive capacity of the soil.

This Trade Mark and a guaranteed Analysis stamped on every bag. Protect yourself by demanding "Davies Brands."

Many people have grown rich out of robbing the soil. If the methods of the past prevail many farms that have made money because everything was taken out and nothing put back will point the way of their future owners to the poor farm.

Continued cropping without replacing the food annually consumed soon leads to soil impoverishment and resultant small yields of poor quality.

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We are only too glad to offer our assistance to those desiring suggestions relating to the mixed fertilizer they should use for any particular crop or piece of land. Write us—we will consider it a favor if you do so.

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And when he came to sell it to a buyer on the floor
He added on his profit and a half a dollar more.

The man who shipped that barrel stuck his label on it, too,
And talked of early freezes and the damage that they do;
The man to whom he shipped it said the grower's price was high
And raised the price two dollars more than in the days gone by.

The man who stored that barrel told of shortage in the pick,
Of scale and other pests that make the apple orchards sick.
And he put on five dollars to the cumulative price—
And so it went, each handler taking out his little slice.

O, when you eat this apple, may it fill you with delight
To know that someone profits on each nibble and each bite.
And, O, be glad you do not live so very far away
From where the apple started, for think what you'd have to pay!

—Chicago Evening Post.

This simple, truthful story of the apple from the west,
Comes eastward with a message though it looks to be a jest.
It tells the eastern farmer if he'll grade and pack his primes,
He can safely add the dollars where the western men get "dimes."

—M. E. K.

New Brunswick

The New Brunswick Department of Agriculture has recently attempted a new method of advertising the fruit growing possibilities of that province. A splendid window display of apples grown in the St. John Valley and other parts of New Brnuswick was placed on view at 757 St. Catherine Street, West, Montreal, where the

Every Man who Sprays His Orchard or Garden—Every Man who Uses Arsenate of Lead—should read this

A Comparison of Two Different Kinds of Arsenate of Lead

Fig. 1.

GENERALLY speaking, there are two separate and distinct forms of Arsenate of Lead on the market, Neutral and Acid. Neutral Arsenate of Lead is composed of arsenic and lead prepared in such a manner that all the arsenic is thoroughly combined with lead. This material is very light in gravity, settles very slowly in water, is fluffy, and when sprayed on the foliage clings very tightly to it.

On account of its fluffiness it has great covering power and because all the arsenic is thoroughly combined with lead it does not change its composition on exposure to the weather, and so will not burn the most delicate foliage.

In the Acid Arsenate of Lead, only two-thirds of the arsenic is neutralized with the lead, the other third being free or loosely combined so as to form a precipitate which is insoluble in water at first, but which on exposure to weather begins to disintegrate and give free arsenic which will severely burn tender foliage. This material is much heavier in gravity, not so fluffy, settles much more rapidly in a spray mixture when used for spraying purposes and does not cover the area of foliage so thoroughly on account of its greater density. The reproductions illustrate the difference in the two forms of Arsenate of Lead. One is Sherwin-Williams New Process Arsenate of Lead, which is the highest type of an absolutely neutral, thoroughly combined material. The other is one of the typical brands of Acid Arsenate of Lead offered in competition usually at a much lower price. This shows very clearly the defects common to an acid form of Arsenate of Lead.

Figure 1 shows the two forms of Arsenate of Lead stirred up in water, the same quantity of paste being used in each case and diluted to the same total volume with water.

Figure 2 shows these same glasses after settling 7 minutes.

Figure 3, after settling 15 minutes.

Figure 4, after they have stood all night and settled all they could.

After thoroughly settling, the bulk occupied by a given quantity of New Process Arsenate of Lead is approximately 45 cubic centimeters, whereas the acid material is 20 cubic centimeters, showing two and one-quarter times greater bulk for New Process Arsenate of Lead.

From the economy standpoint, S-W New Process Arsenate of Lead will show very satisfactory results. It is not the cheapest brand on the market, but the uniform, high quality maintained more than balances the few cents additional in first cost.

It is an ideal Arsenate of Lead for fruit-tree or vegetable spraying, because its composition is such that it will not injure the most delicate foliage. Where only a small amount of spraying is done, such as in the garden or vegetable greenhouse, S-W Process Arsenate of Lead is really the only practical material that should be used, due to its adaptability for use on all kinds of foliage with entire safety. It is put up in suitable air-tight packages, which keep it in fresh, usable condition at all times.

Fig. 2.

Fig. 3.

Fig. 4.

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Basic Slag is being used in thousands of tons in the Maritime Provinces and Quebec, and the consumption in Europe amounts to over two million tons per annum. It is therefore no untried Fertilizer. Every farmer from the Old Country knows about Basic Slag, but for your own satisfaction ask the Department of Agriculture Instructor for your district, or the editor of any farming journal as to its merits. Basic Slag is the ideal Fertilizer to apply to stiff clay lands, to wet, marshy fields and to all soils which have become sour. If you have any such pasture buy one ton of Basic Slag and broadcast it over two acres, applying it at the earliest opportunity—the sooner the better.

Until our selling arrangements in Ontario are completed, you can be supplied direct from the Factory at $20.00 per ton, freight prepaid to your nearest station—cash with order.

Make this experiment and you will feel grateful to us for bringing the merits of Basic Slag under your notice. An interesting pamphlet giving particulars of the results obtained by leading agriculturists from the use of Basic Slag, will be forwarded by post on application to

THE CROSS FERTILIZER CO., Ltd.

SYDNEY, N.S.

Or to their Sales Agents for

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Eastern Ontario, MR. A. L. SMITH, 220 Alfred St., Kingston

New Brunswick Department of Agriculture had rented a store for that purpose. Twenty-five boxes of McIntosh Reds, Fameuse, and Yellow Bellfleurs were shown in the windows. These were of a size and quality that would not be excelled on Montreal Island, the home of the Fameuse, and where, it is claimed, the McIntosh Red grows to perfection.

In the store proper were a dozen more of boxes of King of Tompkins and Merits, while on the counters were display cones and plates of McIntosh and Fameuse.

Mr. R. P. Gorham, assistant horticulturist of New Brunswick, was in charge of the exhibit. He was assisted by Mr. J. H. Ross and Mr. Kenneth Emberley, of Macdonald College . Literature descriptive of the fruit growing possibilities of the province was distributed and full information given on orchard planting and management. The exhibit attracted much attention and favorable comment. It opened on December 28, and closed on January 18th.

Fruit growing in New Brunswick has gone ahead rapidly during the last few years. It promises to become one of the chief industries of the province. Nearly sixty thousand apple trees were planted in 1912, and the number of orders already placed for spring delivery indicates that an even larger number will be set in 1913. McIntosh Reds, Fameuse, and Bethel are being most largely planted, as these varieties seem to attain their greatest perfection in New Brunswick and bring the best prices on the market. Land values are reasonable, and farms can be purchased in the fruit sections at from fifteen dollars to forty dollars an acre.

Major Snelgrove's Death

The members of the Ontario Horticultural Association will hear with regret of the death on 22nd December of Major H. J. Snelgrove, formerly of Cobourg, but more recently of Toronto, the former president of the Ontario Horticultural Association, and at the time of his death an honorary director of that organization. Major Snelgrove was for years an active member of the Cobourg Horticultural Society, and was largely instrumental in the formation of the Ontario Horticultural Association, with which he had been actively connected since its inception.

Major Snelgrove was an enthusiastic lover of flowers, and contributed occasionally to The Canadian Horticulturist. He was present throughout at the recent convention of the Ontario Horticultural Association in Toronto, where his friends were disappointed to notice that he did not appear to be looking as robust as usual. The sickness which terminated in his death set in early in December.

Cooperation in Nova Scotia

The United States Consul-General at Halifax has contributed to his government the following information regarding the cooperative movement among Nova Scotia fruit growers:

Three years ago, says a consul, the fruit growers of Nova Scotia found they were hampered in many ways in disposing of their crop. All shipments to Europe were being made through commission agents, who in turn consigned to merchants in London and Liverpool. In this way expenses in some cases exceeded profits. There was also a lack of system in sorting and packing, and consequently the fruit did not have the standing in the big mar-

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References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

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"The beauty of it is," writes one Ontario farmer, "that the increased fertility seems to be permanent. Dry weather has less bad effect on our crops now than it used to, the soil is much more easily worked, making the day's work easier both for the horses and for the men, it is less trouble to raise better crops, and we are a good deal surer of good returns since our soil was built up by the use of an

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I H C manure spreaders, **Corn King** or **Cloverleaf,** are made in various styles and sizes to meet any and all conditions. There are wide, medium and narrow machines, all of guaranteed capacity; return and endless aprons; in short, a spreader built to meet your conditions and made to spread manure, straw, lime, or ashes as required.

I H C spreaders will spread manure evenly on the level, going up hill or down. The wheel rims are wide and are equipped with Z-shaped lugs, which provide ample tractive power without jarring the machines excessively. The apron moves on large rollers. The beater drive is positive, but the chain wears only one side. The I H C agent will show you the most effective machine for your work. Ask to see an I H C manure spreader. You can get catalogues from him, or, if you prefer, write the nearest branch house.

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kets it should have had. In order to overcome these difficulties local cooperative associations were organized at three points, but these were not altogether successful.

Last year a central association was formed which included the smaller ones. This association handled four hundred thousand barrels. Later a larger cooperative central organization was formed known as the United Fruit Companies, with capital of five thousand dollars in fifty-dollar shares. The capital afterwards was raised to eleven thousand dollars. Each member of his association must have one share, and no one is allowed to have more than five shares. The fruit of each member is gathered by himself and after sorting is taken to the warehouses of the association, of which there are five. Here the fruit is re-sorted and properly packed under the direct supervision of a general manager, the discarded fruit being taken to the vinegar factory. For repacking and supervision the grower is charged five cents a barrel. In this way uniformity in pack is secured and the fruit is handled in a wholesale way.

As a still further advantage supplies, including fertilizers, are purchased in a wholesale way as well. As a result of cooperative purchasing the price of barrels has been reduced from forty cents to twenty-eight cents and thirty cents. Later on the association expects to make its own barrels. The general manager receives four thousand dollars a year, but out of this he is expected to pay the wages of the men employed in packing. During the present season the association has handled six hundred thousand barrels.

B.C. Fruit Growers Wide Awake

(*Continued from page* 39)

responsible for the poor prices obtained in 1912. It was the breakdown of the organization in the United States that had hampered the markets. He urged the establishment of canneries and evaporators in every district and the further coperation of the growers, and was confident that well considered requests of such a body as the Fruit Growers' Association would receive good support from the Government who were doing everything in their power to help them. He referred in terms of deepest sympathy to the death of the late president, Mr. R. H. Agur.

FRUIT INSPECTION

Mr. C. W. Baxter, chief Dominion fruit inspector for the prairie provinces, explained the practice of officials of his department in enforcing the Fruit Marks Act. The following resolution, moved by Mr. Thomas Bulman, which had been carried at a meeting of the directors, was then presented:

"That whereas the present method of enforcing the Fruit Marks Act seems entirely inadequate, and

"Whereas, owing to the difficulties in enforcing the changing of the marks on the package after it reaches the consignee, and

"Whereas it is unfair to our industry and to our shipping and marketing concerns to allow the present conditions in which they are placed to continue to exist;

"Therefore, be it resolved, that we respectfully petition the Dominion Government to formulate regulations making it incumbent on United States shippers to comply with our Fruit Marks Act before their packages will be allowed in Canada."

Over this a bot crossfire of questions was directed at Mr. Baxter. In the end

he was forced to admit that as matters stand the interpretation of the Act by the Dominion Government does not enforce regulations on United States fruit as strictly as on Canadian produce. The law says that fruit must be marked with its grade at the place of origin, and this the shippers of Canadian fruit have to comply with, but the United States growers are allowed to ship in fruit marked with American grades which are re-marked by the jobbers at the points of distribution in Canada.

Mr. Kidston and other gentlemen made it plain that the Act gives power to insist that all United States fruit must be marked with Canadian grades before it is allowed to cross the boundary and the original marks erased.

Mr. Baxter stated that reputation was far more efficient in selling fruit than grade marks ,and that the standards mentioned in the Act should be regarded as minimum standards and disregarded if a better standard can be reached. He would prefer to see the "fancy" grade done away with, but did not believe it was possible to demand one hundred per cent. perfection in packing on a commercial scale. He would not say that the inspection of all fruit on the boundary line was an impossibility but that it would need an army of inspectors. There was also a difficulty in that the Act talked in one place of "indelible" marks and in another of erasing these.

Mr. R. M. Palmer, the chairman, in putting the vote of thanks to Mr. Baxter for the patience with which he had answered the numerous queries, remarked that after all much of his speech was an apology for the existing state of things. (Laughter.) The resolution was then put and carried unanimously.

A discussion took place over the size of box approved by the Dominion Fruit Conference, but the resolution proposing a change was withdrawn.

REFORMS ADVOCATED

Mr. Garraway, who manages the Okanagan Fruit Union at Vernon, gave statistics showing the enormous output which must be handled within the next few years, when the thirty thousand acres now planted in the province come into full bearing. The estimate is that in 1915, two thousand five hundred carloads of fruit will be shipped out; in 1920 this will be increased to ten thousand carloads. . Meantime the output of the United States will probably increase to fifty thousand and one hundred thousand by the same years, unless it is found that their older orchards are diminishing their products, as is the case in the eastern and middle west states.

The disappointment of growers at their returns from the past crop was not unnatural but if they had studied the subject they would have found no cause for apprehension for the future. With their young orchards, they had done as well as growers with fully matured trees. There was need for cheaper rates of transportation for perishable fruits but the wholesalers, in his opinion, had not been getting an undue proportion of the profits on the peaches, or, in fact, on the fruit as a whole. He believed that it was the retailer they must go for, and that they must educate the consumer to realize this. The press could do a great deal towards this by publishing daily the wholesale and retail prices in each centre.

To improve conditions, growers must cooperate, and, in formulating any plans to this end, they could save much time and money from a study of what was being

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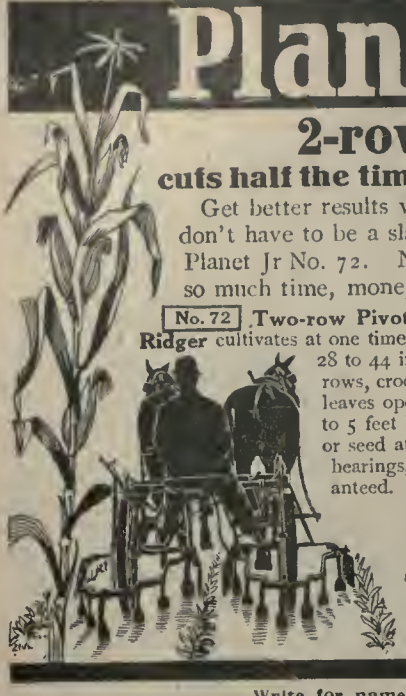

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done along those lines by the Americans, who had been buying their experience for years and paying dearly for it. Their organization had broken down last year, but they were at work already on perfecting it; and British Columbia must lose no time in putting machinery in motion to procure equally efficient organization against the time when the Americans would have perfected theirs. The enormous output he had already referred to as coming would make it all the more necessary.

Storage and cold storage were things they must have as soon as possible, and he believed the same plant could be used for pre-cooling peaches and prunes in their season. In fact, he hoped that with the proper plant it might even be possible to obtain advances on fruit in cold storage as the wheat grower did on his grain in the elevators. He considered more attention should be paid to marketing each fruit at its due season and educating the consumer as to when to ask for it; also to the varieties they planted. The day of twenty-six varieties to one carload was over. But now that twenty-three per cent. of the Okanagan orchards were planted in Jonathans, there would be all the greater need of careful and scientific methods of marketing and distribution.

MARKETING PROBLEMS

Mr. E. H. Shepard ,Editor of "Better Fruit," published in Oregon, spoke on "The Marketing Problems of the Northwestern States." He laid stress on the utilization of the by-products of the orchard by means of canneries, evaporators, and vinegar factories, but he warned those present that to start any of these industries it was necessary to obtain the help of the most experienced men in the world both to handle and manufacture and market the produce.

Questioned as to the possibility of eliminating the jobber, he considered this would never be possible, but with regard to excessive profits made by retailers he advocated educating the public by a campaign through the press, and quoted several instances where public opinion, once raised, had speedily settled such questions in its own favor. Too many profits were made on many articles of produce before they reached the consumer. Cooperation first of local units and then of the whole province, must be the aim, but whether the time was ripe for a central organization and distributing centre in British Columbia he was not prepared to say. Strict legal contracts between individuals and each local organization were absolutely necessary.

RESOLUTIONS ADOPTED

Among the resolutions adopted were the following:

"Be it resolved that this board urge the Dominion Government to enact such legislation as will exclude deciduous fruit, such as apples, pears, crab apples, quinces, peaches, apricots and plums, from being imported into this province from countries, states and provinces known to be infected with injurious insect pests and diseases not widely prevalent or distributed within or throughout the province of British Columbia."

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"That the Government be requested to afford facilities for lending money at a low rate of interest to farmers and settlers for the purpose of clearing land for agricultural and horticultural purposes."

"That the time has arrived when express fruit trains or cars attached to express trains ,should be run for the rapid handling of perishable fruit."

"That the C.P.R. and Dominion Express Co. be urged to provide proper warehouses to protect fruit handed to them for conveyance. Much fruit is now left in the open both upon receipt, transfer and delivery."

"That the Provincial Government and the C.P.R. be and are hereby urged to have pre-cooling plants established throughout British Columbia."

TARIFF CHANGE PROPOSED

"That the tariff on United States fruit entering Canada should be at least as high as the United States tariff on fruit grown in Canada exported to the United States."

This had regard to the fact that, whereas the duty on Canadian apples entering the United States is 25 cents a box, that on American apples coming into Canada is only 13 cents.

"Whereas application has been made by shippers from the United States for the privilege of partial unloading in transit of carloads of fruit, and whereas such privilege, if granted, would on many grounds tend to kill the British Columbia berry-growing industry, this convention most emphatically protests against such privilege being granted, and suggests that copies of this resolution be forwarded to the Dominion Express Company and other parties interested."

"Whereas, shipments of fruit on consignment from the United States to points in Canada have had a very disastrous effect on our market, and whereas, the present anti-dumping clause of the tariff regulations is not effectual in preventing the consigning of fruit, therefore be it resolved, that efforts should be made to stop the dumping of United States fruit into the Canadian markets and that the Dominion Government be urged to so amend the Act and regulations as to effectually penalize shipments of fruit being made on consignment in Canada."

OTHER RESOLUTIONS

Among other resolutions passed were the following: One asking for an annual grant of two hundred and fifty dollars for the provincial entomological society; one asking for a change in a provincial law which would make it possible for cooperative fruit growers' associations to obtain financial assistance from the Government similar to that now given to storage warehouses; and one advocating the early completion of a telephone system between agricultural districts on the Mainland to obviate one of the chief obstacles to efficient cooperation among fruit growers.

The delegates re-elected the executive and the directors en bloc, with only four exceptions, where resignations had been sent in.

STRAWBERRY PLANTS
FOR SALE

For Spring delivery, we are offering choice well rooted plants of twelve standard varieties. Prices right. Lists free.

ONTARIO NURSERY CO., WELLINGTON, Ont.

RENNIE'S SEEDS

WRITE NEAREST ADDRESS FOR CATALOGUE.
WM RENNIE CO LIMITED TORONTO
Branches:-MONTREAL. WINNIPEG. VANCOUVER.

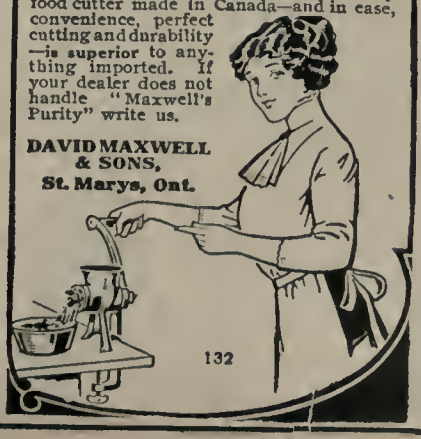
MAXWELL'S "PURITY" FOOD-CUTTER

Is entirely different from the ordinary food chopper. The barrel is in two closely fitting sections, clamped together by one set-screw. Canadian made machine.

Better in quality, capacity and price works better, better finished, **less in price.** Five different cutting plates.

"MAXWELL'S PURITY" is the only food cutter made in Canada—and in ease, convenience, perfect cutting and durability —**is superior to anything imported.** If your dealer does not handle "Maxwell's Purity" write us.

DAVID MAXWELL & SONS,
St. Marys, Ont.



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Kellogg Plants Yield $500 To $1200 Per Acre

Great Crops of
Strawberries
and How to Grow Them

IS a beautifully illustrated book of expert strawberry information written by America's most successful strawberry grower. It gives our famous sure-crop method of growing fancy strawberries, and explains how our Pedigree Plants are grown on our great farms in Idaho, Oregon and Michigan. IT IS FREE!

R.M. Kellogg Co., Box 570
THREE RIVERS, MICH.

Progressive Jones Says:

"Get More Barrels And More Baskets"

I tell you, friend, that you can make your trees yield you more barrels and baskets of luscious fruit by enriching the soil with the profit-making

Harab FERTILIZERS

I know fruit growers who are many dollars richer from using Harab Fertilizers last year. I know of some who won prizes for their fruit—one being a prize winner at International Apple Growers' Association at Chicago. These prize winners attribute their success to Harab Fertilizers.

Now, friend, if Harab Fertilizers have done so well for other fruit growers, vegetable growers and farmers, isn't it reasonable to expect they will do as well for you? Isn't it worth while trying them for at least half your orchard? Then make a careful count and see how many more barrels and baskets of big, sound fruit you get from the fertilized trees than you do from the unfertilized. If the results don't warrant you using Harab Fertilizers on your whole orchard next year, well, I'll be surprised, very surprised. But I'll bet the surprise will be on the other foot, when you see how many more dollars a small investment in Harab Fertilizers will bring you.

There's an interesting booklet, describing the 14 different Harab Fertilizers—each for a particular purpose. The Harris Abbatoir Co. promise me they will send my friends copies without charge. Just write them for a copy to-day.

Yours for more fruit profits

Progressive Jones

The Harris Abbatoir Co., Ltd., Toronto

12

125-Egg Incubator and Brooder Both For $13.75

If ordered together we send both machines for only $13.75 and we pay all freight and duty charges to any R. R. station in Canada. We have branch warehouses in Winnipeg, Man. and Toronto, Ont. Orders shipped from nearest warehouse to your R. R. station. Hot water, double walls, dead-air space between, double glass doors, copper tanks and boilers, self-regulating. Nursery under egg tray. Especially adapted to Canadian climate. Incubator and Brooder shipped complete with thermometers, lamps, egg testers—ready to use when you get them. Five year guarantee—30 days trial. Incubators finished in natural colors showing the high grade California Redwood lumber used—not painted to cover inferior material. If you will compare our machines with others, we feel sure of your order. Don't buy until you do this—you'll save money—it pays to investigate before you buy. Remember our price of $13.75 is for **both** Incubator and Brooder and covers fraight and duty charges. Send for FREE catalog today, or send in your order and save time.

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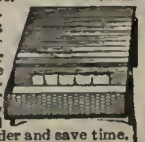

Write us today. Don't delay. WISCONSIN INCUBATOR CO., Box 237, Racine, Wis., U. S. A.

Ontario Orchard Competitions

P. W. Hodgetts, Director of Horticulture, Toronto

The awards in the orchard competition in Ontario for 1912, are given herewith. The judging in all districts, except Number three, was in the hands of W. F. Kydd, of the Department of Agriculture, assisted by W. L. Hamilton, of Collingwood, Leslie Smith, of Wellington, and Henry Latimer, of Alliston. The judging in number three, the Niagara District, was done by F. M. Clement, of Macdonald College, Quebec.

In a number of the classes all of the prizes were not awarded. The judges felt that in these cases they had good grounds for withholding the money. In too many instances the poor pruning alone was sufficient to bar an orchard from winning. Again, there were a number of excellent young orchards entered that could not be considered to be in bearing, as called for by the conditions of the competition. Leaving this point out of the score, a number of these would have been placed higher than some of the prize winners.

Altogether the competition was keen in all of the districts, except possibly the inland counties included in district number six and those in district number one, in the Ottawa Valley, where fruit growing is yet in its early stages. Ninety-nine orchards were entered in the six districts. This number would have been much larger if the announcement of the competition could have been made earlier in the season. The funds for the work were drawn from the Federal grant to Ontario agriculture and were not available until well on into the summer.

THE AWARDS

DISTRICT No. 1.—Eastern Ontario District, comprising Lennox, Addington, Frontenac, Renfrew, Leeds, Lanark, Grenville, Carleton, Dundas, Russell, Stormont Glengarry, Prescott:

120 trees up: 2nd, Andrew Fawcet, Inkerman; 3rd, G. Howard Ferguson, Kemptville.

60 to 120 trees: 2nd, Elary S. Casselman, Dundela; 3rd, L. A. Parisien, Summerstown.

DISTRICT No. 2.—Lake Ontario District, comprising Halton, Peel, York, Ontario, Durham, Northumberland, Hastings, Prince Edward.

300 trees up: 1st, W. H. Gibson, Newcastle; 2nd, John Brown, Brighton; 3rd, D. G. Gibson, Newcastle.

120 to 300 trees: 1st W. F. Rickard, Newcastle.

40 to 120 trees: 1st, Jonas Samis, Newcastle.

DISTRICT No. 3.—Niagara District, comprising Lincoln and Wentworth.

1,000 trees up: 1st, Wm. Armstrong, Queenston; 2nd, Hamilton Fleming, Grimsby; 3rd, I. W. Brennan, Vineland.

500 to 1,000 trees: 1st, I. Parnall, St. Catharines; 2nd, James Aikins, Niagara-on-the-Lake; 3rd, Thos. E. Bartlett, Beamsville.

300 to 500 trees: 1st, Harper Secord, St. Catharines.

DISTRICT No. 4.—Lake Erie District, comprising Essex, Kent, Elgin, Norfolk, Haldimand, Welland, Brant, Oxford, Middlesex.

300 trees up: 1st, J. E. Johnson, Simcoe; 2nd, J. B. Waddle, Simcoe; 3rd, Isaac Pierce, New Sarum.

120 to 300 trees: 1st, Frank D. Bainard, Glanworth; 2nd, Walter E. Palmer, Marshville; 3rd, Wm. H. Prudham, Flamboro Centre.

IHC Wagons Are Tough

DID you ever notice, when one of the wheels of your loaded wagon dropped into a rut or bumped over a stone, how the seat springs gave and rebounded, almost throwing you off? That is an indication of the shock and strain that the rigid spokes and axles have to stand whenever the wagon is traveling over a rough road or through a field. Even on a smooth road there is always the crushing strain of the load, affecting every part from the top box to the lowest point of the tire. I H C wagons

Petrolia Chatham

take these stresses and strains as a matter of course. They are made to stand just that sort of work. From neckyoke to tail board they are built of selected, air-dried lumber, strong and tough, bending to strains but coming back as straight and true as ever when the load is removed. Besides being tough, I H C wagons are light running. The wheels have just the right pitch and gather, and run true. All skeins and skein boxes are paired. The running gear is assembled by skilled workmen whose wages depend as much on the quality as on the quantity of the work they turn out. Machine work, being more uniform and a great deal faster, takes the place of hand work wherever possible. Consequently, I H C wagons are practically all of the same high standard of quality throughout.

You cannot do better than to equip your farm with I H C wagons. The I H C local agent sells the wagon best suited to your work and your conditions. See the wagon at his place of business and get catalogues and literature from him, or, address your request to the nearest branch house.

Eastern Canadian Branches

International Harvester Company of America
(Incorporated)

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.

Built at Chatham and Petrolia, Ont.

EWING'S RELIABLE SEEDS

The Germs of Life are Vigorous

in Ewing's Reliable Seeds—and so are the Vegetables, Field Crops and Flowers grown from them.

This is not merely a claim—it is a *proven fact*, which has been demonstrated annually, for for over forty years, by thousands of Canadians.

Don't stake your time, trouble, expense, and the season's use of your land, on an uncertainty. Get Ewing's Reliable Seeds and be *sure* of good crops.

WM. EWING & CO., Seedsmen

McGILL ST., MONTREAL. 27

Where There is Condensation

—there is need for a Morehead Steam Trap. Condensation in steam lines is akin to matter out of place—means wasted energy.

If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. Ask for Trial Trap.

CANADIAN MOREHEAD M'F'G CO., Limited
WOODSTOCK, ONT.

CANADIAN REPRESENTATIVES:—George W. Cole, Woodstock, Ont.; Robert S. Bickle, Winnipeg, Man.; H. E. Kirkham, Montreal, Que.; Robert Hamilton, Vancouver, B. C.

Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and so'dered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH AND MACHINE CO., Ltd., TWEED, Ont.

More profit per acre

HOW ?

Manufacturers have found that their costs per unit of production whether it be a pair of shoes, a machine or a yard of cloth, are reduced by increasing the output of the factory. The same principle applies on the farm. Increasing the yield per acre reduces the cost per bushel, thus making more profit. Increased production chiefly depends on increased available fertility which is obtained by the use of high grade fertilizers.

BOWKER'S

Bowker's Fertilizers are high grade and available. They are active, sure, and well backed by forty years of experience, the best of materials and facilities and prompt service. A suitable fertilizer for every crop and adapted to every pocketbook.

We want Agents in unoccupied territory. Write today for prices and terms; this may mean a good business for you if you act at once.

Write anyway for our illustrated catalogue and calendar before you buy your spring fertilizer. We want you to know what we can do.

BOWKER FERTILIZER COMPANY

73 Lyman Street, Buffalo, N. Y. 39 Chatham Street, Boston, Mass.

Original and largest manufacturers of special fertilizers.

40 to 120 trees: 1st, Albert E. Westbrook, Oakland; 2nd, Wm. Dickie, Burford; 3rd, R. R. Davis, Burnaby.

DISTRICT No. 5. — Lake Huron and Georgian Bay Districts, comprising Lambton, Huron, Bruce, Grey, Simcoe.

300 trees up: 1st, K. Cameron, Lucknow; 2nd, A. J. Clark, Ravenswood; 3rd, McGregor & Pritchard, Walkerton.

120 to 300 trees: 1st, S. J. Hogarth, Exeter; 2nd, A. Brown, Owen Sound; 3rd, McArthur, Owen Sound.

40 to 120 trees: 2nd, Jos. Orchard, Minnesing; 3rd, J. Rushton, Port Elgin.

DISTRICT No. 6.—Centre Ontario District, comprising Victoria, Peterborough Dufferin, Waterloo, Wellingon, Perth, Muskoka and Parry Sound.

120 trees up: 2nd, N. H. Black, Rockwood.

30 to 60 trees: 1st, E. B. Hallman, Petersburg.

Town Planning and Civic Improvement

A Provincial Town Planning and Civic Improvement Association was formed recently in Ontario at a convention of representatives of municipalities called by the citizens of Berlin, Ont., to discuss town planning and civic improvement along comprehensive lines. The leading towns and cities of Ontario were well represented, including a large attendance of the leading citizens of Berlin.

The provincial committee is to consist of the following ten members: J. P. Jaffray, Galt, chairman; W. B. Burgoyne, St. Catharines; James P. O'Brien, Fred L. Riggs, Toronto; H. F. Holland, Sarnia; H. L. Hutton, Welland; A. B. Pringle, Preston; C. H. Mueller, Waterloo; Mayor W. H. Schmalz, D. B. Detweiler, and H. J. Bowman, Berlin.

Mr. G. H. Mitchell, C.E., of Toronto, Vice-President of the Toronto City Guild, delivered an illustrated address showing views of leading European and United States cities and small towns where town planning and civic improvement have been

most successful . In Mr. Mitchell's opinion the time has arrived in Canada for national and provincial effort, and for concerted civic activity in each community, to provide for wide and continuous business thoroughfares, convenient grouping of public buildings, rapid transit, adequate street traffic circulation, parks and squares, parkways and boulevards, children's playgrounds and gardens, clean and attractive streets, pure water supply, and efficient sewage disposal, enforcement of laws for structural building and fire safety and for tenement regulation.

The following suggestions were made by Mr. Mitchell to be embodied ultimately in legislation:

Provision for civic Improvement Commissions in smaller cities; provision applicable to cities smaller than already provided for in the Ontario Act for purchase by municipalities of land required for opening streets themselves, but for an adequate margin on each side, which, after the opening has been completed, can be resold as lots, thus producing a revenue to help meet the cost of the improvement; provision for municipalities to secure streets wider than sixty-six feet in new sub-divisions when necessary to conform to the town-planning scheme; a practical method for any necessary widening of business streets already built up; an adequate control over new sub-divisions so that the layout will conform to modern requirements and so that misrepresentation cannot be practised; provision for control by the municipality, through the Ontario Railway and Municipal Board, of the layout and street-planning features of subdivisions outside city and town limits for a stated distance.

At a meeting of the Toronto Branch of the Ontario Vegetable Growers' Association held recently, Mr. A. H. MacLellan, of the Guelph Agricultural College, stated that the sterilizing of soil intended for the growing of lettuce, tomatoes and cucumbers, results in better production and lessens loss from disease and worms in the soil.

FLOWER POTS

Hanging Baskets and Fern Pans

FOR THE SPRING TRADE

We make the "Standard" Pot, the best Pot in the world—uniform, best of clay, well burned, in every respect superior to all others.

All our pots have rim on shoulder, thus allowing them to be placed together perfectly and preventing breakage in shipping and handling.

Place your Spring Order NOW.

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Strawberry Plants

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Our **Improved Williams** is the surest, most productive, and best shipper of all Strawberries.

We list 25 choicest kinds, selected from over 100 varieties tested.

Also Black Cap Raspberries, and Evergreens.

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THE LAKEVIEW FRUIT FARM

H. L. McConnell Grovesend, Ont.

Send your consignments of APPLES to the Home Country to

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COVENT GARDEN

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who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

To Protect the Beauty That is Yours

and to enchance it, if that be possible, is a duty none the less binding because it has been made so agreeable. That duty centres in Beauty's chief expression, the skin.

With Intelligent care and the regular use of such perfect preparations as Na-Dru-Co Ruby Rose Cold Cream and Witch Hazel Cream, you can preserve its bloom in spite of exposure to raw, cold winds, over-heated, steamy kitchens, or ill-ventilated rooms.

NA-DRU-CO

Ruby Rose Cold Cream

does much more than keep the outer skin soft and supple—it feeds the underlying tissues, fills out the tiny hollows, prevents wrinkles, and gives a fresh and wholesome charm. With its subtle odor of fresh roses, and the soothing sensation which it imparts, Ruby Rose Cold Cream is a toilet gem.

In opal glass jars, 25c. at your druggist's.

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Witch Hazel Cream

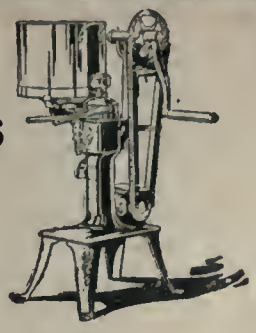
is a refined and altogether delightful preparation of Nature's own cooling, healing specific, Witch Hazel. Under its soothing influence roughness, chaps, sore lips, sunburn, windburn or irritation after shaving vanish like magic. Used freely after washing it keeps the hands and face soft and comfortable.

25c. a bottle, at your Druggist's.

Always look for the Na-Dru-Co Trade Mark when you buy.

National Drug and Chemical Co. of Canada, Limited. 183

8500 Revolutions Per Minute



THAT is the wonderful speed at which an I H C separator bowl turns. The rim of a six-inch bowl, running at separating speed, is traveling at the rate of nearly two and a half miles a minute, faster than the swiftest express train that ever ran. Such speed as this means strain on shafts, bearings, gears, frame, in every part of a separator, such strain as can only be rendered harmless by the nicest adjustment of strength, flexibility, and quality of material and workmanship. The business of a cream separator is to skim the butter-fat from whole milk, but to do this it must be made mechanically right, or it soon ceases to be useful as a separator. The machine that meets these conditions and sells at the right price is an

I H C Cream Separator Bluebell or Dairymaid

I H C separators have that carefulness of adjustment and balancing of moving parts which make for durability and easy running.

There are points in the construction of I H C separators, such as the heavy phosphor bronze bushings, trouble-proof neck bearing, cut-away wings, dirt and milk-proof spiral gears, etc., which make I H C separators, beyond any doubt, the best of all to buy. There are four convenient sizes of each style. Ask the I H C local agent for demonstration. Get catalogues and full information from him or write the nearest branch house.

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International Harvester Company of America
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At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

Try it—test it—see for yourself — that "St. Lawrence Granulated" is as choice a sugar as money can buy.

Get a 100 pound bag—or even a 20 pound bag—and compare "St. Lawrence" with any other high-grade granulated sugar.

Note the pure white color of "St. Lawrence"—its uniform grain—its diamond-like sparkle—its matchless sweetness. These are the signs of quality.

And Prof. Hersey's analysis is the proof of purity —"99 99/100 to 100% of pure cane sugar with no impurities whatever". Insist on having "ST. LAWRENCE GRANULATED" at your grocer's.

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Cooperation Commended*

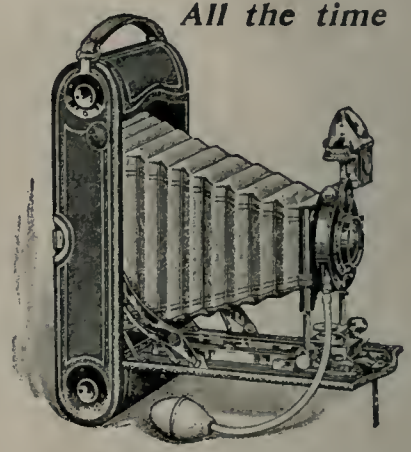
R. Brodie, Westmount, Quebec

Cooperation is no new thing among farmers. Europe for years has been far ahead of us on this side of the Atlantic. Our neighbors in the State of New York have also awakened to the importance of this matter, and Mr. John Dillon, Chairman of the New York State Committee on Co-operation, is now in Europe making a study of farming cooperation and market conditions.

Two years ago at our Winter Meeting at St. Hyacinthe we brought this matter of Cooperation before our Society for the first time. It met with a good deal of opposition from some of our members, but in spite of this, under the auspices of our Provincial Government we have five Co-operative Associations formed throughout our Province. In connection with these Associations we have five demonstration orchards that will convince the people of

*Extract from a paper read before the annnal convention of the Quebec Fruit Growers' Association.

Kodak time is All the time



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serves every need of photography without any of the bother.

For amateur or expert, for indoor scenes or out; for daylight or flashlight photography; for a picture record of home faces and familiar places; for the story of the travel—as art or pastime, the Kodak way is the way to best results.

Kodak films are not only more convenient than cumbersome glass plates—they yield better results—and there's no dark-room in the Kodak way of picture making.

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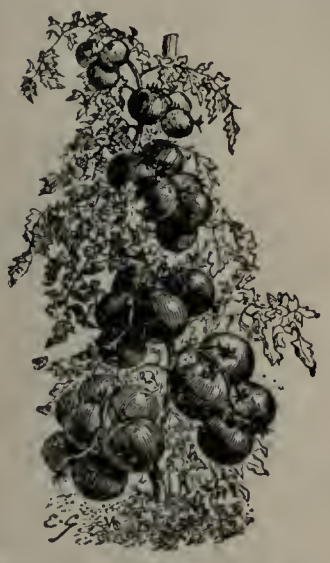
CANADIAN KODAK CO., Ltd.
TORONTO

these districts that pruning, cultivation and spraying are necessary to produce healthy trees, and good first-class fruit. All these Associations in our Province are in their infancy and have a lot to learn.

Competition may be the life of trade, but more often it is the death of somebody's business. On the other hand Cooperation is the life of a community. Some city people say that the Associations will make the cost of living higher. I don't think so. They will get better goods and more value for their money. There is too great a difference between what the farmer receives and what the consumer in the city has to pay for farm products.

This is an age of progress. We have left behind to a large extent the use of the sickle, scythe, and flail. I would like to bring before you a few primary needs in which farmers could cooperate to advantage. Neighbors could cooperate in de-

HIGH GRADE
SEEDS



NEW TOMATO
LISTER'S "PROLIFIC IMPROVED"

A most remarkable variety, forces earlier, and without doubt the most prolific Tomato ever offered. The plant is of a sturdy habit, very closely jointed and producing enormous bunches, averaging 25 fruits, bnt as many as 40 are quite common, while for its free setting and fruiting qualities there is no variety to equal it. The fruit is of medium size, round and firm, skin a beautiful deep glossy scarlet, while the flavor is exquisite.

This is the variety and the selection that enabled Mr. W. N. Craig, of Langwater Gardens, Boston, Mass., to stagger Bostonians nnd the States in general, at the great Horticultural Exhibition held in Boston, on June 23rd, 1912, with an exhibit of this variety in fruit and bunch, gaining the coveted honor of n First-Class Certificate, the first for nigh 20 years granted for a commercial sort.

This selection is now being offered for tho first time. Pkt. 25c

You should plant in your garden, SELECTED SEEDS. the best the world affords of the desired vnrietles.

Write for our New Illustrated Catalogue replete with choicest atrain of

Vegetable and Flower Seeds

Dupuy and Ferguson
38 Jacques Cartier Square - MONTREAL

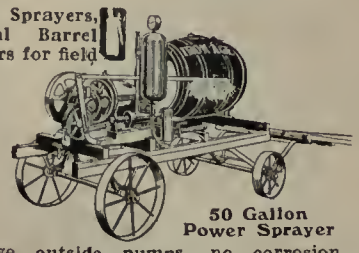
Shipped Ready For Use

No. 190 50 Gallon Horizontal

Sprayers $4 to $400

For large or small orchards, market gardens, potato farms, grain, mustard, tobacco, home and garden work, poultry plants, whitewashing, cleaning, cold-waterpainting, etc.

Bucket and Knapsack Sprayers, Horizontal and Vertical Barrel Sprayers, Tractlon Sprayers for field crops. Power Sprayers, 50, 100, 150, 250 gal. Furnished complete or in part to build up Sprayers already in use. Forty combinations.



50 Gallon Power Sprayer

IRON AGE
(Now Made in Canada)

Sprayers have outside pumps—no corrosion, pleasant for handling; easy to get at. The pumps have the greatest efficiency, that is, the least slippage of any pumps in use on any sprayer—this has been shown by disinterested tests. Unit Sprayers, so you build higger when necessary. Ask your dealer to show them and write for new booklet "Spraying Vines, Trees nnd Bushes."

We also make full line Potato Machines, Garden Tools, etc.

THE BATEMAN-WILKINSON CO., Limited
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2-H. "Original" Engine. Double Acting Pump, direct connected. Chain driven agitator. Outside sediment chamber and stralner.

250 gal. Power Sprayer. 200 pounds constant pressure. 6 to 8 nozzles.

Furnished with or without steel truck.

Tower furnished if wanted.

Pratt's 160 page Poultry Book, 10c b mail.

Put the "KICK" in the Eggs

If you want big hatches of husky chicks, the kind that live and grow. Infertile eggs and small hatches of weak chicks are the rule when the breeding stock is in poor condition, weak and run-dowo.

Pratts Poultry Regulator

will quickly correct this condition in your flock because it acts directly on the digestive and reproductive organs, strengthening them, toning them up, invigorating them. 25c, 50c, $1; 25-lb. Pail, $2.50; 100-lb. Bags, $9.
After the chicks are hatched you should raise them all.

Pratts White Diarrhea Remedy
25c, 50c
controls bowel troubles. Use it for all broods as a preventive.

Pratts Baby Chick Food

makes chicks grow at an astonishing rate, with big bones, plenty of muscle and unbounded strength and vigor. You can rely upon this scientific food mixture to carry through the critical period all worth-while chicks, and give them that favorable start upon which future profits depend.
In boxes and bags, 25c up. "Your money back if it fails."

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stroying insect pests and noxious weeds. What avails it if one farmer keeps his land clean and his neighbor leaves his dirty with weeds and a breeding place for insects. I am strongly in favor of compulsory spraying, for what is worth planting is worth caring for.

A great many of our farm implements are very expensive, and in many cases used only for a day or two and then put away for another year. What a saving it would be if growers would cooperate in their purchase and use. I refer especially to power sprayers, ditching machines, and even in manure spreaders, potato planters, and potato diggers. Cooperative associations should assist in their purchase.

A Word for House Sparrows

R. Walter Brooks, Brantford

The common house sparrow has been condemned as being a dirty, useless, mischievous bird that is not insectiverous. I wish to defend him, as I have been taking observations for some time, having had several sparrows nest in the cornice of my barn.

A few years ago we could not raise any grapes owing to the ravages of the steel bug. Now I have not seen one for three or four years. Last year I saw a sparrow catch a yellow (cabbage) butterfly, take it to the ground, pull off both wings, pick up the body, and fly away. Another day I saw a sparrow with what I took to be a large Empress Moth. I tried to get closer to it, but it flew away.

I also saw several sparrows catch June bugs and eat them. Last summer, while sitting on my lawn, I noticed some sparrows flying and catching something. Upon making investigation, I found a nest of flying ants, which were flying straight up into the air. The sparrows were waiting for them, and catching every one. A worm also has been ravaging the Boston Ivy. I have seen the sparrows catch them. Now I cannot find one. The wasp (Yellow Jacket) is also a despised insect. I saw one attack a green cabbage worm, eat part of it, and fly away with the remainder.

Items of Interest

The Toronto Nurseries, at 1167 Queen St. East, Toronto, is conducted by Mr. J. McP. Ross, the well-known contributor of articles to THE CANADIAN HORTICULTURIST. Mr. Ross's many years of experience in the nursery business should ensure good results for the customers of this firm.

The Farmers' Club at Rednorville, Prince Edward County, Ontario, recently went on record to the effect that it did not consider the Dominion Government was exercising sufficient care in the selection of fruit inspectors competent to judge of the proper packing of fruit. The club advocates growers grouping themselves in sufficient numbers to be able to furnish buyers with several carloads of goods packed ready for shipment.

Parks Commissioner Chambers, of Toronto, recently outlined at the annual meeting of the Toronto Civic Guild an immense boulevard system extending for forty-two miles along the outer edge of greater Toronto, and involving an expenditure of $7,000,000, the plans for which have been prepared. When completed it will be one of the finest on the continent. The lighting system will be a feature of these boulevards, which will link up the city's parks.

The Canadian Horticulturist

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The Best Varieties of Fruit for Ontario Orchards

Prof. J. W. Crow, O.A.C., Guelph

Anyone who is at all conversant with conditions in the fruit industry will have noticed an important change in regard to the market demand for certain varieties of apples. Our markets are asking more and more each year for better varieties and better grades. Some of the varieties which were formerly in high favor are being discounted, and indications are that the sorting process will go on even more rapidly in the future. The classes of apples most in demand might be listed as follows: First, early apples; second, large-sized cooking apples; third, fancy dessert apples. It is so easy for one to be misunderstood when one undertakes to recommend varieties for certain districts, that I scarcely feel like making the attempt. However, a few remarks based on the above classification may not be out of place and may throw some light on the variety question.

EARLY APPLES

During the summer months and until middle or late August, our markets are short of apples. There is a good demand for early fruit, most of which is used for cooking purposes only, but the marketing season is comparatively short. It is true that Duchess, for instance, is counted a profitable variety in some of the northern districts, but it is also true that the growing of this variety could be made very profitable in those districts which can put early sorts on the market at the earliest possible date.

In my opinion there is an excellent market for such varieties as Yellow Transparent and Duchess, and the best district in which to grow them is the southern tier of counties, including Essex and the southern parts of Kent, Elgin, and Norfolk. The Niagara District can grow early apples to excellent advantage, and on account of the excellent marketing facilities which obtain in that district it is safe to say that early apples could be grown there in a large commercial way. Any district which undertakes to grow early fruit must possess good shipping facilities. These varieties are picked as soon as they are large enough for cooking purposes and they should go to market in baskets or in boxes.

The most economical apple for culinary purposes is the large one. If this is of an attractive red color, so much the better. There is a market for this class of fruit from September to late winter, but an apple to sell well to this trade must be strictly first-class and of the best size and color possible. Such varieties as Alexander, Wolfe River, Belnheim, and Spy when well grown always command ready sale.

DESSERT APPLES

The first requisite in a dessert apple is quality, the second is color. The size may be large, medium or small. For the fanciest trade, the small apple is in greatest demand. Even of the large varieties such as Spy, the smaller grade, provided the color and quality are as good, is sometimes more in demand than the larger size. The best commercial dessert apples are Snow, McIntosh, and Spy. These three varieties can be grown to greater perfection in Ontario than in any other province or state on this continent, and I advise that they be made the three leading varieties.

In my opinion, the best chances for financial profit in apple growing lie in the production of high-class dessert fruit. The three varieties mentioned and a few others which might be mentioned as belonging to this class, if well grown, are always in demand and can be depended upon to sell at good figures.

The low prices of the past season have shown that some old favorites do not possess sufficient quality to command ready sale. Even the Baldwin was discounted heavily last season, and it is certainly not over-stating the matter to say that Baldwin does not possess sufficient quality to commend the best class of trade. I am quite aware that at the present time Baldwin is being more extensively planted in this province than any other variety. At the same time, there are districts in Ontario in which such inferior varieties as Ben Davis, Gano, and Stark are at the top of the planting list. I do not wish to advise in the matter, but if present indications count for anything, it is certain that profit in apple growing in the future will depend more upon quality than ever before.

Following are brief notes concerning varieties which may be added to the foregoing lists of dessert and cooking varieties of apples:

Cayuga Red Streak (commonly called Twenty-ounce).—A large, early fall apple of splendid cooking quality and splendid color; extensively grown in Western New York, thrives splendidly in southern Ontario, and would grow much farther north, as the tree is decidedly hardy.

Rhode Island Greening.—An old standard and still highly desirable. In my opinion it is a safer variety to plant than Baldwin, and just here I should like to say that in selecting varieties it should be the aim of each planter to pick only those which are believed to be the most profitable sorts. If one looks over the list and selects the few of which one feels most certain, there is no necessity of going further or of planting varieties in any way inferior. Simply select the best.

Tolman.—Another old favorite which hitherto has not been in large demand on the market. It is now being asked for, especially for the north-west, as a sweet winter apple for baking purposes.

DESSERT VARIETIES

Gravenstein.—A September dessert apple of the finest quality, also first-class for cooking purposes. It drops somewhat badly, but possesses splendid color and is an all-round attractive and desirable variety where one of this season is desired.

Grime's Golden.—A splendid mid-winter dessert and cooking variety for southern Ontario.

OTHER VARIETIES

Besides those mentioned, there are a few varieties, such as King, Ribston, Golden Russet, and Wagener, which possess valuable qualities. King and Golden Russet are notoriously shy bearers unless planted on rich land or heavily fertilized. With good care, it might be possible to cultivate them profitably. Ribston is a late fall or early winter dessert apple of excellent color. The tree seems to be only moderately hardy. I should be glad to learn the experience of growers of Ribston over the province, as it is a variety which seems to possess every desirable quality. So far as I have observed, it is not widely grown except in one or two districts, and I should like to know if it cannot be cultivated over a much larger area of western Ontario.

Wagener is a mid-winter, high quality, dessert variety, considerably resem-

Good Methods Bring These Results

bling Spy. The tree bears very early and is most productive. When well grown, the color is good and in most cases is even better than the color of Spy. I should be glad to know what readers of The Canadian Horticulturist think of this variety, and am anxious to learn with what success it is being produced throughout the province generally. I should also like to know if any are growing Spitzenburg to any extent, and if they are able to get good crops. This is one of the most desirable of winter dessert apples, and in addition to high quality possesses also splendid color. It is usually a light bearer; possibly this characteristic could be changed by proper care or feeding. For southern Ontario it might prove a desirable variety.

The chief disadvantage of Northern Spy is lack of color. In my opinion, it is time we made arrangements in our middle districts, such as the north shore of Lake Ontario, to hold a larger proportion of our Spies for the late winter trade. The Spy, grown in a short-season locality, is not an attractive market apple until well into the winter, and a green Spy on the Christmas market is a very poor sample of what Ontario can produce.

For planting with Northern Spy, there is probably no better variety than Blenheim. Blenheim should be, I think, one of our leading varieties. The fruit is large, very attractive in color, not subject to scab, and the tree is decidedly productive under good care. It is naturally rather late in coming into bearing, but would no doubt respond to proper treatment in the same way as any other variety, and can doubtless be made to produce good crops at a moderate age. Blenheim and Northern Spy are both in the front rank as dessert and cooking varieties.

Varieties of Grapes*

F. G. Stewart, Homer, Ont.

Out of the scores of varieties of grapes we might plant, the six best varieties for profitable growing I consider are as follows in descending order of values: the Concord, Worden and Niagara, Moore's Early, Vergennes and Agawam.

The first two do equally well in sand or clay, but the Concord, which is a blue grape is the one most extensively grown, and the most profitable one we have. It is a good shipper, a hardy grower, and preferred by the women to any other kind. The first few inches of the new spring foliage is very rough and furry, and so this variety of grape resists the early spring frosts better than the smoother leafed kinds, such as the Rogers.

The Worden, a black grape, is also a hardy and vigorous grower. It is a good bearer, but although a higher flavored grape than the Concord, it is not such a good shipper, as the skin is thin. Like the Concord, its foliage is furry and able to resist the early frosts.

The Niagara is a white grape, a splendid bearer, but being a smooth-leafed kind, does not stand the early frosts as well as the Concord and Worden.

The Moore's Early is another black grape, hardy, of good quality, earlier than the other kinds mentioned, but not such a heavy producer. I would not recommend it for hard ground as it does not produce enough wood on such land.

The Vergennes, a red grape, is a heavy bearer, of good quality, ripening a week later than the Concord, and like them in being able to withstand the early spring frosts. In trimming this variety, no more than twenty-four buds should be left to a vine as each bud will throw out from four to five bunches, where other kinds would put forth but two or three at most. This kind is thus apt to overbear, and if it does the grapes will not color up properly.

The Agawam, a red Roger grape, is thick skinned, a good shipper and heavy bearer. It does best on clay, as it makes too much wood and foliage on light soils.

The Lindley does better in the heavy soil around Winona than in any other part of Ontario.

Fruit trees and vines are perennial occupants of the soil and do not yield the most profitable returns in ground which is over-rich in nitrogenous materials, and for these artificial supplies of potash are essential if fruit of highest quality is desired.

*A paper read at the annual convention of the Ontario Fruit Growers' Association in Toronto, November, 1912.

Best Six Varieties of Peaches*

Wm. Armstrong, Queenstown, Ont.

I have been requested to name six varieties of peaches which would prove the best for an up-to-date commercial peach orchard. After over forty years experience in peach growing, and especially when I consider the experience of the past two or three years, I will recommend only three or four varieties as suitable for a commercial orchard.

There is a well defined season for each kind of fruit. Peaches maturing and offered for sale very early or very late in the season are seldom profitable when compared with standard varieties maturing when the market demands this kind of fruit.

VARIETIES RECOMMENDED

The varieties I recommend have been fully tested by me in Niagara Township and are as follows: Yellow St. John, Fitzgerald, New Prolific, Elberta; these four and no more.

The St. John is a well known early, profitable, yellow flesh, free stone, highly colored, luscious dessert peach. It ripens about August 20th. The bud is more hardy than any of the Crawford type or family of peach, which it resembles. It has one undesirable feature, namely, after its eighth year it often has the bad habit of forming clusters of buds on the end of short spurs, which should be reduced by rubbing off more than half the buds or young fruit.

The Fitzgerald is also a free stone, yellow peach, maturing about the 28th August. It is more hardy in bud than the St. John, but not so high in color or large in size.

The New Prolific is the most profitable of all peaches, maturing during the height of the peach season about September 8th. It is not as high in color nor as large in size as the St. John, but more hardy in bud, a sure cropper, free stone yellow peach. It requires careful trimming and liberal feeding.

The Elberta is well known, and requires little introduction, maturing about September 20th. It is a good long distance shipper and fairly hardy in bud.

Potash improves the quality and color of fruit, and aids in the formation of starch and sugar.

They used to keep the orchard as a pasture lot and headed the trees high to keep the cows from them, but orchard land is too valuable for pasture purposes, and stock have no business in an orchard that is being worked for apples. They pack the soil and break the trees.—A. Nagelwoort, Brighton, Ont.

*A paper read at the last annual convention of the Ontario Fruit Growers' Association.

Pruning and Spraying with Good Cultivation are Reclaiming Hundreds of Ontario Apple Orchards. A Simcoe County Orchard.

Spraying the Apple Orchard: What it Costs

R. S. Duncan, District Representative, Port Hope, Ont.

THE question as to whether it will pay to spray has long since been answered in the affirmative, so it will not be necessary to enter upon any argument in regard to this phase of the subject. As to its relation to hygiene, it is sufficient to say that spraying is absolutely essential to the health and vigor of the tree, for protection against insects and fungus diseases and to the production of clean fruit.

There are still a few growers who do not believe in spraying. We hope they are few. On the other hand many growers realize the importance of spraying, pruning, cultivation, and fertilization, and yet they fall down in spraying be cause they regard the work as disagreeable and expensive, hard to understand, and difficult to accomplish. A few general principles are easy to learn. It is not expensive, considering results. Spraying is an insurance. It pays, and pays well.

In order to obtain results it is necessary that the fruit grower spray intelligently. The proper mixtures should be used, applied at the proper time, and the spraying done very thoroughly with the the right kind of an outfit—one capable of giving good pressure and not a makeshift appliance made solely to sell.

Apple orchards are attacked by many diseases and insect pests, which are steadily on the increase. These cause an immense yearly loss in the apple crop of Ontario. The farmer must know what he is spraying for; in other words he must know the habits or life histories of these pests in order to know how best to combat them and attack them during the most vulnerable period of their life.

INSECTS AND DISEASES

The chief insects attacking apple trees and fruit are: San Jose Scale, Oyster Shell bark louse, blister mite, aphids, bud moths, codling moth, tent caterpillars, case bearers, canker worms, plum curculio, and railroad worm. There are a few others of minor importance. The chief diseases are: Apple scab, apple leaf spot, sooty blotch, bitter rot, black rot, canker, and blight. Practically all these insects and diseases can be controlled by spraying, with the exception of railroad worm, blight, and canker.

HOW TO CONTROL THEM

To control the scale insects and blister mite, spray with lime-sulphur, commercial strength, one to ten, just before the leaf buds burst. The scale insects can be controlled by spraying any time on the dormant wood with the foregoing mixture; but the only time to catch the blister mite is just before or as the buds begin to burst. Hence we "kill two birds with one stone." The little mites winter underneath the bud scales, and as soon as growth takes place in the spring they leave their hiding place and push their way through to the leaves where they enter the epidermis of the lower surface of the leaf and form blisters which later turn reddish brown. They don't affect the fruit directly, but impair the function of the leaf in the manufacture of food and hence weaken the vitality of the tree.

The bud moth, canker worm, case bearer, and caterpillars may be controlled by spraying with a poison, two pounds Arsenate of Lead to forty gallons of water, just before the blossoms burst or as pink is beginning to show in the leaves. As this is also the time for the first spraying to ward off apple scab, and other fungus diseases, and to protect the young stems of the forming fruit, lime sulphur, one to thirty-five commercial strength, could be used with the poison for insects just named.

For aphids, it is advisable to examine the twigs and leaf buds, and if present to spray with kerosene emulsion, which is made by dissolving half pound of soap in one gallon of rain water and then adding two gallons of kerosene and stirring vigorously until the mixture is of the consistency of cream. Dilute one gallon with nine of water for spraying. The efficacy lies in the fact that every little louse should be hit with the emulsion; hence, the need for doing thorough work. A preparation known as "black leaf forty"—directions given on can for use—has given good results in control of aphids when applied along with the lime-sulphur for the second spraying. The writer has not used this material, so cannot vouch for its effectiveness.

Spraying with lime-sulphur, one to forty with two pounds arsenate of lead added to forty gallons of the mixture, if done thoroughly and immediately after the blossoms have fallen, will control codling worm and curculio. This is also the second spraying for the control of apple scab.

A fourth spraying about two weeks later will be effective in warding off scab, especially so if the season is at all damp.

The only remedy for twig blight is to cut out well below the affected area and burn. Be sure to disinfect the tools after each cut in order to prevent the spread of the bacterial spores. Canker on old trees should be cut out and the cut surface disinfected and given a coat of white lead and oil to prevent the entrance of spores.

The railroad worm adult lays its eggs underneath the skin of the apple about the first week in July—too late to spray for it. The only remedy is to pick up all fruit as it falls to the ground and get rid of it in some way. Pasturing with hogs or sheep serves the same purpose.

Proper equipment for spraying operations is necessary. A good pump, with all accessories in the way of strainer and hose, nozzles, fittings, and extension rods, together with a tower for tall trees, are essential to economical and

efficient work. For small home orchards a barrel hand pump will answer the purpose. For orchards of one to eight acres a double-acting hand pump which gives a pressure of from one hundred to one hundred and twenty-five pounds may prove satisfactory. Over eight acres, a power outfit is almost a necessity.

We have had the management of four demonstration orchards in the counties of Northumberland and Durham during the past two years, and it might not be amiss to get our methods. Our spray outfit consisted of a double-acting hand pump mounted on a waggon—not on a stone-boat—with a tower equipment for reaching tall trees.

Our tank was a home-made affair, holding two hundred gallons. We used two lines of hose with two angle nozzles of the "friend" type on each line of hose. One man was on the tower equipped with fifteen feet of hose and a rod eight feet long; the other man being on the ground with thirty feet of hose and a ten foot bamboo rod. Two men acted as power on the pump—giving a pressure of one hundred to one hundred and fifty pounds. All solutions were strained into the tank. The arsenate of lead was first brought into suspension before being strained into the spray tank. We always endeavored to spray with the wind and to do as much of the tree as possible. One side of the tree was sprayed as it was approached; we then drove directly opposite and sprayed the central parts thoroughly; then we completed the other side at the third stop. Medium-sized trees were sprayed by stopping twice. We aimed to cover every portion of the tree though not wasting any material. For the spray after the blossoms fell we tried to do most thorough work. Our object was to fill every calyx cup. Ninety per cent. of the codling worms enter the apple in the calyx end, hence it is important to have the poison placed where it will do most effective work.

We sprayed each orchard three times, using five to eight gallons of mixture on each tree for each spraying. We always cleaned our pump, hose, and nozzles by running clean water through them. Never leave liquid in pump over night, because there is danger of freezing in cold weather and clogging up the nozzles. This point is worth remembering, as it very often is the cause of much delay and annoyance.

Each fruit grower who uses lime-sulphur should have a hydrometer in order to test the solution and know how many gallons of water should be added to each gallon of lime-sulphur. Instructions are given in the spray calendar, which can be had for the asking.

Methods of Pruning—The Open-centre Habit of Apple Trees

Points to Watch When Ordering Nursery Stock

Prof. J. W. Crow, O.A.C., Guelph, Ont.

I find that a great many planters value a tree according to its size. In my opinion, this is an error. Expert peach growers always refuse the largest trees, choosing rather one of medium height, or slightly above, and moderately stocky. In apples I think the same rule would hold good.

In a well grown block of stock, the large trees are not necessarily the best, and the statement is even more true in plums and cherries than in apples. It is much to be desired that our planters shall become acquainted with the advantages of younger trees. This is most important in the case of cherries and plums, as stone fruits are more difficult to transplant successfully, and younger trees can be more safely moved than those of two years of age or older. In ordering one year trees, one should specify trees not less than three and a half feet in height and at least moderately stocky for the size. I observe, too, that very many planters are unable to tell the age of a nursery tree. This is not usually a difficult matter, however, as the annual growths are for the most part plainly indicated on the tree itself and are readily observed.

ADVANTAGE OF YOUNG TREES

One of the chief advantages in the use of younger trees is the fact that a tree procured from the nursery as an unbranched whip can be headed at any desired height by the fruit grower and can be shaped by him so as to make a tree of better form than the ordinary two year old tree as received from the nurseries. The advantages of low-heading are many, and are for the most part obvious. The disadvantages are not nearly so great as one would expect, for the reason that a low-headed tree tends to grow more upright, and cultivation is not interfered with nearly so much as one would expect.

Weeds and grass do not grow under low-headed trees to the same extent as under high-headed trees, and shade furnished by the tree itself also reduces somewhat the necessity for cultivation under the tree. With trees headed to fifteen inches or less, there is very little necessity for cultivating within two or three feet of the trunk. Anything required in that area can be done by hand at small expense. It is obvious that a tree with a fifteen-inch trunk is much more convenient to spray, prune, pick and thin than one with a longer trunk.

THE STOCK TO BUY

In selecting nursery stock, one should have these points in mind and should endeavor to buy low-headed trees or buy trees which can be headed low if desired. Transportation charges on the younger trees are less, and in moderate quantities at least they could be forwarded by express with much less damger of delay and consequent injury.

In purchasing trees, it is always wise to see the stock beforehand, if at all possible. In case one can deal through an agent whose reliability is unquestioned, it would be satisfactory to order through him, but if not, the best plan would be for a number of growers in a district to club together and send one man to purchase stock for the entire number.

The Use of Commercial Fertilizers Defended*

R. Innes, B.S.A., Manager Sandside Fruit Farm, Coldbrook, Nova Scotia

Fertilizers "are not always suitable to the land to which they have been applied." Unfortunately this is sometimes the case. However, one firm with whom the writer is familiar is paying particular attention to this point, and is placing experts in soil fertility in various sections of the province of Ontario to assist and advise their local representatives in recommending suitable mixtures for farmers to use on the various classes of soil they wish to fertilize. They also maintain a laboratory in which chemical and physical analysis of soils are conducted, simply for the purpose of endeavoring to eliminate the danger of misapplication of their fertilizer mixtures.

Dr. Dandeno says, "Plant excretions are the chief cause of infertility, and it is in the decomposition of such materials that the application of fertilizers of any kind proves of value." To the writer's mind continued cropping without replacing the plant food annually consumed is what leads to soil impoverishment and resultant yields of poor quality. It is true that some plants excrete certain toxic substances which have been known to retard the growth of other crops, but, upon exposure to the air for a certain time by plowing or by treating with lime or some such neutralizer their injurious effects soon vanish.

"To supply a commercial fertilizer with prospects of success at least three things are necessary"—if Dr. Dandeno had stopped there he would have been all right, but he goes on to say—"first, a knowledge of the effect of the previous crop on the soil; secondly, a knowledge of the crop now to be grown and its relation to the excreta of the previous crop; and thirdly, a knowledge of the biology of the soil." We certainly should take into consideration the effect of the previous crop on the soil, the amount of plant food that has been applied previously, the nature of the soil, and the crop to be grown, but if a farmer has to wait unitl someone determines the relation of the crop to be grown and the previous crops excreta and the bacterial content of his soil besides, before he can feel safe in applying a fertilizer, he had better sell his farm at once as such information will not be available for practical application for some time to come.

It is indeed amusing to farmers of Nova Scotia and the other Maritime Provinces to hear of such criticisms in connection with the use of commercial fertilizers. We all use, and with excellent results, on the average half a ton to the acre and so far haven't had any introduction to either the bacteria or plant excretions supposed by Dr. Dandeno to be so essential. If the farmers of Ontario are baffled in this question I venture to say it is due to a large extent to the publication of such ridiculous articles as the one we now have reference to.

"Certain fertilizers are adapted to certain crops and to certain soils." This, to the writer's mind, is one of the few reasonable statements in the doctor's article. Owing to this fact it is necessary for the fertilizer manufacturer to place at the disposal of the farmer mixtures of different analysis. Thus we find on the market a three-eight-six, a three-six-ten, a four-eight-eight, and so forth, varying in price according to their plant food content. It is necessary to determine just what essential element your soil lacks and then furnish it in the correct proportion by selecting a mixture in which the desired element is prominent. Always remember that the "plant food element" which exists in the smallest quantity governs the crop producing power of the soil.

WELL TAKEN POINTS

All the points mentioned by the writer of the article in question in connection with barnyard manure were well taken with the possible exception of a "neutralizing effect on all plant excreta." No one, not even a fertilizer manufacturer, condemns the use of barnyard manure, but there are crops which can be raised decidedly cheaper on fertilizers in addition to which they ripen earlier (as corn) and are of better quality (as potatoes). Farmers are, as a rule, accustomed to think of manure as a bulky article and want bulk for their money, but we should remember that a little of the substance required is better than a good deal that is not needed. It is reckoned that one ton of average commercial fertilizer contains at least twenty times as much plant food as a ton of the best barnyard manure, and may be applied with one-twentieth the labor.

"In buying and using commercial fertilizers patent medicine chances are taken." Most people when they get "stung" would rather not let other people know how they were taken in, but the author of the above quotation evidently does not believe in keeping it a secret. Of course, this is purely an assumption on the part of the writer, but it looks as if Dr. Dandeno has at one time or another been a victim of some

*This article, the first part of which was published in our February issue, is the continuation of a reply to an article on "Common Fertilizers" by Dr. J. B. Dandeno, of Bowmanville, Ont., that Horticultnrist. The discussion is continued on page 72 of this issue.

A Well Sprayed Pear Orchard: That of Mr. Stirling at Kelowna, B.C.

—Photo copyrighted by G. H. E. Hudson, Kelowna, B. C.

Judging Plate Fruit Exhibits

The judges at the last Ontario Horticultural Exhibition in Toronto did not have an easy task placing the awards on the 1,400 plates of fruit exhibited. One of the judges, Prof. J. W. Crow, of Guelph, may be seen with an apple in his hand. Beside and beyond him is another judge, P. J. Carey, Dominion Fruit Inspector.

unscrupulous fertilizer salesman or else has "attempted" to do his own mixing! Speaking as a Nova Scotian and one who credits himself with at least an average practical and scientific knowledge of all kinds of commercial fertilizers, I would strongly advise all Ontario farmers, and in fact all those desirous of increasing their yields, to lose no time in taking advantage of the benefits to be derived from the use of these materials, and would impress upon the reader the necessity of doing his own thinking and not letting a man who is prejudiced against the use of fertilizers influencing him. Let us hear from someone else!

Making Geraniums Bloom

Wm. Hunt, O.A.C., Guelph, Ont.

For two years past my young geranium plants, in fact they are large plants, refuse to bloom. I have tried all I know to make them do so.—H. L.

The main reason for healthy geranium plants not flowering are that they are being grown in unsuitable soil, or have insufficient light and sun, or a too dry or gas-laden atmosphere, or an exhausted soil. Soil that is composed very largely of humus or leaf mould will often cause this trouble. This leaf mould or black soil from underneath trees of itself is not suitable for geraniums, or indeed for but very few pot plants. It induces a too rank, soft growth that does not produce flowers.

The best soil for geraniums—in pots especially—is a soil composed of three parts of well-rotted, fibry-rooted, tough sod about four inches thick, cut from loamy soil where the grass is short, enriched with one part of well-rotted barnyard manure or cow manure. These materials should be piled up out of doors six or eight months until they are decomposed and ready for use.

If the soil where the sod was taken from is of a very light, loamy nature, no sand for lightening or tempering the soil will be necessary. One part of fine sand mixed with ten or twelve parts of the loam mixture will be an advantage if the sod was taken from a clay loam soil. This compost if properly prepared will suit almost any pot plant, especially geraniums. Loamy garden soil, or loamy subsoil from underneath sod, mixed with the proportion of sand and fertilizer given will make a fairly good substitute soil for pot plants.

Saucers of water placed around and under the plants will improve conditions when they are due to a too dry or gas-laden atmosphere. Saucers or pans of water on the radiators, or a steaming kettle on the stove will be a great help. The dry atmosphere of most dwelling-houses is often the main cause of troubles with house plants of all kinds. For a plant that has become too full of roots and the soil exhausted, repotting the plant into a larger-sized pot, or an application of some liquid fertilizer, are the best remedies to apply. If the plant has become tall and unsightly looking, it is best to treat it as described farther on in this article.

RENOVATING OLD PLANTS

Large plants will probably have to undergo a process of renovation before they will flower successfully. This is done by cutting the plants back severely to a part of the stem where the wood is moderately hard and woody, and by removing nearly or quite all the remaining foliage. Keep the soil barely moist until the young growth starts, which will usually be in four or five weeks from cutting back. Then take the plant out of the pot, remove the whole of the old soil without injuring the roots. Cut off nearly half the length of the roots, and pot the plant into a very sandy soil in a one or two size smaller pot. Use half sand and half potting soil with some broken pieces of flower pot for drainage. This is called "potting back," and is done to get a new root system started.

When the plant has developed young shoots with five or six large leaves on, and the root system is well started, repot the plant into a two size larger pot in good potting soil, as described in the first part of this article. Place nearly an inch of broken flower pot or similar material in the bottom of this larger pot for drainage. Do not disturb the roots of the plant in the operation, only to remove the old drainage. Pack the soil fairly firm when repotting the plant. Water the plant well once and set in a not too sunny window for a time, temperature about sixty-five degrees. Do not give it too much water until well started into growth, keeping the soil moist but not too wet after the first watering. Later on more water can be given.

When the soil in this large pot has become exhausted, and the pot fairly filled with roots, give it some liquid fertilizer once every week or two. "Bonora," sold at seed stores, is a good fertilizer for pot plants. Old geraniums in pots that have become tall and unsightly looking can be renovated at any season of the year by the method described when proper conditions can be given them. For spring and summer flowering the plants may be cut back from now on. For winter flowering it is best to cut them back in July or August out of doors, taking them into the window early in September before frost.

The Fuchsia

H. Gibson, Fergus, Ont.

One of the best summer flowering plants is the fuchsia. A well-grown specimen is a sight worth going a long way to see.

Easy to cultivate and of extremely rapid growth, it is a plant that is well suited for windows or for the decoration of the verandah in the summer. They do extremely well exposed to the free air in the latter position, but care should be taken to protect them from strong winds, as the branches are brittle and easily broken. An eastern aspect is the one to be preferred; the sunshine of the early part of the day suits it much better than that of midday. Placed in a western position the leaves will curl as if scorched under the influence of the afternoon sun.

The month of March is the best time to start the fuchsia into growth. Bring them from the cellar or other frost-proof place in which they have been stored for the winter, put them in the light, and give water in small quantities, increasing the supply as the plants show signs of growth. As soon as it can be ascertained where the new branches are going to be, cut away at least half of the old top. Repot as soon as a sturdy growth is assured, using a soil compost of loam, leafmould, and a liberal addition of sand.

As the pots become filled with roots, they should be moved on to a larger size so that the plants are not checked in any way. A large specimen will require a ten-inch pot. Young plants should be potted on, as they fill the pots with roots. Older plants will not require moving on as often.

A plant which keeps up its reputation as an annual fit to stand any kind of weather is the corn flower (Cyanus Minor.)

Shade Trees, Their Beauty and Importance

M. E. T., Toronto, Ont.

"THE sanitary value of trees is now very generally recognized. In the past this most important factor in the conservation of a healthful and temperate climate was sacrificed with ruthless hand. Through the waste of the forests winters have become colder, summers hotter; living springs have ceased to flow perpetually; fertilizing streams have disappeared; the earth is deeply frozen in winter and parched in summer, and finally new and grave diseases have appeared where formerly they were unknown."

The foregoing is an extract from an article written by Stephen Smith, M.D., LL.D., in 1899, while endeavoring to secure legislation empowering and requiring the Department of Parks in New York City to plant and cultivate trees, shrubs, plants, and vines in the streets, avenues, and public places of that city. Other cities in the States have followed suit, and since then a very general recognition has been given to the beauty, grace, comfort, and healthfulness of trees, and especially of shade trees in parks and on city streets.

After our last summer's experience one may well ask, can the temperature of the city during the summer months be modified so as to prevent that extreme degree of heat from which one and all suffered, and on which the enormous sickness and death-rate of the people depend? Vegetation plays an important part, but especially do trees, in modifying the climate of large areas —the temperature of even a clump of trees is cooler in summer and warmer in winter than the surrounding country. The thermometer will vary from twenty to thirty degrees in the sun and shade, and as much as ten to eleven in the soil, and the reverse is true in winter. Railroad engineers use far less fuel in passing through forests in winter than in traversing the same distance in open country. Who has not given a sigh of relief when on a hot summer's day he has passed under a tree's friendly shade?

We have not only shade to be grateful for—trees give off a large quantity of water from the surface of their foliage. The greater amount of leaf surface, therefore, the greater amount of vapor emitted. It has been estimated that an acre of grass emits six thousand four hundred quarts of water in twenty-four hours, and that the Washington Elm at Cambridge, Mass., a tree of moderate size, produced a crop of seven million leaves, exposing a surface of five acres of foliage. Thus vegetation tends powerfully to cool the atmosphere, and this effect increases in proportion to the increase in temperature. Carbon is the great nutritive agent the tree needs, and this it gets from the air in the form of carbonic acid gas. In the process of assimilation oxygen is restored to the air. Man needs oxygen. Carbonic acid gas is a waste product of the animal system. Thus trees purify the air and the vegetable kingdom provides conditions by which the animal kingdom maintains life and health.

The tree is a great factor in the making of a beautiful city. Well chosen specimens—and these well kept and æsthetically planned—will prove of economic value. The beautiful city attracts visitors, and many visitors mean greater business activity, and this leads to the city's rapid growth and prosperity.

In the choice of trees for street planting several things are necessary and should be considered. Trees must be able to endure hardship and be among those most immune from insect attack. Other qualities, too, such as straightness and symmetry, cleanliness and longevity, and abundance of shade are desirable. The initial cost of planting such trees is small, but after a number of years who will estimate their value? One species on a street has given to many cities in the United States a grand effect. The welcome shade, too, is better secured by the uniform spacing of one species.

When new planting is being done it would be well to alternate trees of rapid growth with those which grow more slowly. This secures shade and beauty during the time such slow growing trees, as for instance the elms, take to reach maturity. After considering the nature of the soil, the width of street, the height of buildings on that street, let us plant our maples, elms, poplars, lindens, oaks, catalpas, and others similar.

The sugar, red and Norway maples

An Avenue of Pin Oaks, the Beauty and Restfulness of which Speak for Themselves

Elms, as Shade Trees, Have a Grace and Beauty all Their Own

are all delightful shade trees. The white or silver maple, a particularly graceful and pleasing species for park planting, is not so good as a street tree, it being very easily damaged.. The Horse Chestnut, planted everywhere because of its beautiful appearance when in flower, is undesirable as a street tree. The ground underneath is strewn first with the sticky bud scales, then the falling flowers—later the fruit is such an attraction to the boy that he damages the tree in his attempts to secure it. The tree, too, is particularly liable to insect attack.

A Plea for the Spring Garden

Miss M. E. Blacklock, Toronto, Ont.

THOSE who have only a few beds, gorgeous though they be, of tulips and hyacinths, do not know the joys of a spring garden, though they may think they do. Not that clumps of tulips and hyacinths are not a great addition to it, but geometrical beds of them are anything but lovable, and lovableness is the very essence of the spring garden.

The garden I am advocating would be quite unnoticeable a block away, but you can poke about in it and enjoy it and be continually finding something new and interesting. The first things to greet you will be the snowdrops, which are due here (Toronto) any time after the first of March, and last well into April and even May in late seasons. The Giant Snowdrop (Galanthus Elwesii) is the earliest and perhaps the most showy of the genus, and is much larger than the common one (G. nivalis), which follows it. The double form of the latter makes, when naturalized, a mass of snowy white. Snowdrops should be planted so that the bulbs almost touch each other and then left undisturbed to form permanent clumps, which will increase in beauty year by year. In time they will become too thick to prosper, but not for a good many years. They can be bought here for one dollar a hundred, and are still cheaper in England, so the price is within the reach of nearly every one.

While the snowdrops are still in perfection the Spring Snowflakes (Leucojum vernum) are making their appearance. These are a little larger and have longer stems than the snowdrop. They have a small yellow blotch at the tip of each petal and are quite sweet-scented. Otherwise they resemble the snowdrops so much that the casual observer almost invariably mistakes them for snowdrops.

Next come the Siberian Squills (Scilla Siberica), in color a most charming blue. These should be planted in groups. Left untouched, they will give a solid mass of color during April.

Blooming contemporaneously with the Siberian Squills are several varieties of Glory-of-the-Snow (Chionodoxa), all of them delightful, though very different, shades of blue. C. Lucillae is a nemophila-blue, C. Sardenis a Gentian-blue, and C. Gigantea (syn. C. Grandiflora), with very large flowers, a lavender-blue. While these are all lovely little flowers, they are not so effective as the Siberian Squill. There is a beautiful white-flowered form of Scilla Siberica to be had now quite reasonably. Two other varieties of the smaller Scillas are pretty—S. bifolia Alba and S. bifolia Carnea, the latter is especially so.

THE HYACINTHS

The earliest of the Grape Hyacinths (Muscari azureum robustum)—pale blue, as its name implies, with a stiff, upright flower stem—adds to the array of the blue flowers with which nature delights to deck the April garden. All these bulbs flower about the same time as the crocus, and continue in bloom equally long.

Of the herbaceous plants the first on the scene is the single form of the white Rock Cress (Arabis Alpina). The double form of it comes on just as the single is waning.

For profusion of bloom there are few things that excel the Rock Cress, and it has the added charm of a faint almond-like fragrance. It is perfectly hardy here (Toronto), and will grow anywhere, though like most things it responds to good treatment. The flowers of the double variety taper up into a spike not unlike a miniature stock, and it lasts in bloom much longer than the single. Bulbs of the Muscari Heavenly Blue, planted amongst its creeping stems, give a charming contrast of blue and white. This Grape Hyacinth, I may add, is the largest and handsomest of the family, though there are several other varieties beside it and M. azureum that are very well worth growing—a pure white one, Pearls of Spain (M. botryoides album), a white one tinged rose (M. b. candidum), and a pale lavender-blue (M. b. pallidum). The last two are little gems of delicate color, but alas! they are too expensive to plant in quantity.

The purple Rock Cress (Aubrietia) is another dear little spring flower. It comes in various shades of mauve, purple, crimson-purple, and even pale pink, forming low-lying masses of color. I am afraid it is not quite hardy except in well sheltered situations, but as it is easily grown from the seed, which is not expensive, it is well worth a trial. I have wintered mine now for four years, but I protect it carefully and grow it on a warm border, where no water ever lodges. It blooms early and combines delightfully with Golden Tuft and the white Rock Cress (Arabis), and remains in bloom a long time. The English rock gardens are brilliant with it through April and May.

The Perennial Border and a Few of Its Best Flowers*

F. E. Buck, B.S.A., Central Experimental Farm, Ottawa

THE flowers best adapted for use in a perennial border may be divided into groups in several different ways. Although I have prepared a list of what are generally considered the best for our Canadian climate and have divided this list into three sections as follows: "Best low growing flowers for the front of a perennial border," and "Best flowers of medium height for the middle of a perennial border," and "Best tall flowers for the back of a perennial border," and have given the different color, height and time of floweing in each of almost 130 different varieties, I do not intend reading such a list on an occasion like this, but shall content myself with very brief references to several well recognized groups of perennial flowers, discussing each group in its seasonal order.

FOUR FLOWER GROUPS

Early in the year when the eye is greedy for color after the long colorless winter, come radiant tulips stimulating everyone to an awakened interest in Nature. But lest they might shock us with their gay attire, they bring along as companions the delicate creamy-white narcissi and the yellow daffodils. These heralds of the flower tribes should be always grown. They are inexpensive to purchase and last for several years in a perennial border before they need to be moved or renewed. Most of them come to us from foreign lands, and the tulips are generally called Dutch bulbs. They are not the very first flowers of spring, the snowdrops and crocuses appearing a week or two earlier, but on account of the great display of color which they produce it is well to think of them as forming the first great group of the season's flowers. They blossom from late April till June.

THE ARDENT FLOWERS

A second great group is that of the peonies, the old-fashioned "piney," changed in form, color and fragrance, but essentially the same in that quality of "ardent appeal" which in the old days gave to it its charm. The modern peony is a close rival of the queenly rose. Wonderful flowers are these beautiful named peonies. There are three varieties, one white called Avalanche, a red named Felix Crousse, and a pink named Magnifica, which, if there were no others to rival them, would rank among the immortal flowers of the twentieth century. But about a thousand named varieties of peonies claim our attention and fill our gardens with magnificent masses of color during the month of June. They are ideal flowers for a perennial border.

While the peonies form the second of the great groups, the irises might rightly be given that place, as perhaps they would be by some people, and the peonies shifted up a place to group three. The iris is the "rainbow flower" and has few rivals. I am really sorry to pass it by. There are, however, so many beautiful flowers of this period that it is impossible to do more than just mention it as being worthy of a much longer reference. Of the other flowers, there are the quaint columbines, which are very numerous in variety and color; the sweet low-growing plants as violets, pansies, and forget-me-nots, and the woodsy flowers as the trilliums, spring beauties, spring anemones, Solomon's seal, lilies, lady's slipper, and many others that might be mentioned. The roses, of course, occupy a place by themselves. They come in at the end of June and last through July.

THE SHOWY FLOWERS

The phlox, or third group, I have called the showy flowers, because they come

*Concluding part of a paper on the "Perennial Border" read before the Quebec Pomological Society.

At the Central Experimental Farm, Ottawa. The New Perennial Border 450 Feet Long, by 12 Feet Wide

Note the great show of color in this picture which was taken August, 1912. The border looked at its best in the months of May and June, when great displays of color were in evidence from groupings of tulips, irises and paeonies. Later color effects were produced by many selected plants, together with the beautiful perennial phloxes and fall asters. This border was planted in September and October of 1911.

in at a time when flower bloom is getting a little scarce, and the show they produce is wonderful. The word "phlox" means a flame. The phloxes are of American origin, and blossom from the middle of July till late in the autumn. The range of their colors is very great. Nothing can quite equal the clumps of the phloxes in a perennial border made up as they are of those magnificent panicles of bloom. Panicles perfect in form, pleasing in fragrance, and varied in tints. Phloxes are favorites with all classes of people.

The fourth great group might be better named, but I call it here the prevailing flowers, for several reasons, one being that most of them are not affected by fall frosts. They last from late August till late October. Most of them belong to the great family Compositae, which has prevailed over all obstacles, and now stands at the summit in the evolutionary climb.

This group has a wealth of color. The white Shasta daisies, the golden sunflowers, the many colored star-like asters are in this group. By means of them the perennial border is filled with color even after the first fall frosts have nipped the more tender flowers.

OTHER VARIETIES

A perennial border with only the four or five great groups of flowers which I have mentioned would be very incomplete. Certain flowers which grow in the perennial border give the extra finish, the charm, the color, the life. They make it an artistic whole, a masterpiece. They include the dazzling Oriental poppies. (How much the border would miss the dazzling brilliancy of their scarlets!) the soulful campanulas or bellflowers; the majestic delphinicums or larkspurs; the glittering gallardias and pyrethruns, or blanket flowers, as the first are called; the delicate gypsophila; the flaming torch lilies, commonly called red-hot pokers; the formal foxgloves and hollyhocks; the rainbow iris; the fragrant pinks; the modest lilies; the plume-like spiraeas, and the glorious yuccas.

Tubers of Tuberous-rooted Begonias

On the left is a typical tuber showing the hollow or depression on top. On the right may be seen an undesirable tuber. See article, page 67.

Growing Daffodils

R. S. Rose, Peterboro

"Can daffodils be grown from seed?" This question has been asked me recently.

In answer I quote from a book entitled, Daffodils, Present Day Gardening, by Rev. Joseph Jacob, (T. C. & T. E. C. Jack, 16 Henrietta St., W.C., London, Eng.).

Daffodil seed, when fully ripe, is black and shiny. As soon as it assumes this appearance, which will probably be some time early in July, it may be sown either in the open ground or in boxes or pans. Most raisers of seedlings prefer the latter plan, although I know one or two cultivators who think the former way the best, as they contend that the plants will sooner arrive at their flowering stage. I have not tested it myself, and am disposed to doubt it, as Mr. Engleheart, who ought to know what is the best, if any one does, always sows the seeds in boxes. Stout, wooden boxes of any convenient size may be used provided they are from six to seven inches deep, and have drainage holes at the bottom. The soil should be good, firm fibrous loam, with sharp sand added to make it light and porous. In filling up the boxes care must be taken to see that the drainage is good; then enough compost may be put in to bring the level up to within an inch and a half of the top. On this the seeds must be sown at equal intervals of one half to three-quarters of an inch, and they must be covered with soil an inch deep.

USE COLD FRAMES

It is best to put the boxes in cold frames, but the lights need not be used until frost begins, unless the weather is very wet. Then they may be put in when necessity requires, and, further, the plants may be protected by mats when the weather is particularly severe. The protection and culture in frames is not absolutely necessary. I have seen boxes just stood out of doors and exposed to all weathers, and the results have been good. The seed soon germinates, if it is sown directly it is ripe. Everything possible should be done to promote growth by seeing the soil is kept at the right degree of moisture, and that the growing period is as long as possible, by putting on the lights when there is a frost at night. The subsequent treatment consists in giving air on every suitable day, and top dressing the boxes with cocoa fibre when the grass-like seedlings appear. This keeps down moss. At the end of two years they may be transplanted into beds in the open, an operation which is performed best when the young roots are beginning to be formed, say in June or July. They must be planted out straight from the seed pan and not in any way dried off. Attention to this matter is important, as it means very often the saving of a year in the plant coming to its flowering stage. In planting out, enough space must be left between the bulbs (which should for convenience of cultivation be arranged in rows) to allow them to grow and flower when they are pricked off. This will be in their fourth or fifth year, although some may not flower until their sixth or seventh. Frequent hoeing between the rows is very helpful to the growth of the young plants, therefore the rows should be clearly marked when there are no leaves as a guide.

The period of waiting will seem long before the first flower shows itself, but if an annual sowing is made, once this period is passed there will be a succession of flowering seedlings every year. It is a fact that the first flower that a young plant bears is not always a sufficient indication of what it is capable of producing. In some mysterious way the flowers improve as the plant gets older. Hence it is advisable to allow young plants that show any promise at all to bloom a second or third time before they are finally discarded. With regard to sowing out of doors a similar procedure must be followed. A sheltered bed must be chosen, and the seeds sown in drills about an inch deep. Transplanting into flowering beds should take place at the end of their second year. No protection is required, as the seedlings are perfectly hardy.

Tuberous Rooted Begonias: Their Growth and Care

Wm. Hunt, O.A.C., Guelph, Ont.

FOR the amateur grower where only a few pots of these showy plants are required, it is best to purchase the tubers in March or April, rather than grow them from seed. When purchasing tubers get them as solid and firm as possible. Soft, pulpy tubers do not give good results as a rule. The tubers should be about one and a quarter to one and a half inches in diameter, or larger, to get good flowering results. Both single and double flowering dormant tubers can be purchased at all large seed stores.

STARTING THE TUBERS

There is no better material for starting the tubers in than pure sand of not too gritty a nature. Tubers can be started in sandy soil, or in chopped moss, but they do not start as readily or as satisfactorily as in sand. The tubers may be started singly in small three or four inch pots, or a number of them may be started in larger pots, seed pans, or in shallow, well drained boxes. A box three inches deep, and ten or twelve inches square, will hold ten or twelve ordinary sized tubers. Be sure and place the tubers the right way up in the sand. Usually the concave, hollow, or the flat side of the tubers should be uppermost, and the round or convex side downward. The top of the tuber should be just under the surface of the sand when set in position. The tubers may be set quite close together if a number are grown, so as to almost touch each other.

Water the tubers with tepid water, temperature of water about fifty degrees. Keep the sand well moist, not too wet. The temperature of the room they are grown in should be from sixty-five to seventy degrees. If a box is used, some half inch holes should be bored six inches apart in the bottom of the box. Artificial drainage, such as broken flower pot. coarse gravel, coal cinders, or lump charcoal about an inch in depth, should also be used in the bottom of the pot or box, to ensure good drainage. Good drainage is very essential at all stages of the growth of begonias. In about a month from starting them, the tubers should be rooted.

CARE AND CULTURE

When the tubers have a good root system started and roots about an inch in length and top growth just started, they may be potted singly in three or four inch pots in rather light soil. A soil made of six parts of good loamy potting soil, one part fine sand and one part of leaf mould well mixed, will make a good compost for the first potting. Water the soil well once after potting, but do not keep it too wet after, for a time. When top growth has well started more water may be given. When the plants have become well rooted in the small pots they may be re-potted into the flowering pots. Six or seven inch pots can now be used, for very strong plants an eight or nine inch pot is not too large. Use nearly an inch in depth of drainage material, and a soil richer in fertilizers than ever before. Eight or ten parts of loamy, potting soil enriched with cow manure and one part sand, well mixed together, makes a good soil for them. Leaf mould (or black mould) is not good for them as it induces a too rank soft growth. If the soil is of a clayey nature a little leaf mould may be used.

Do not disturb the roots of the plant when re-potting only to remove the old drainage. Disturbing the roots of these plants after starting is often disastrous to them. Water them well once after potting, then keep the soil only barely moist until growth has well started again. Set the pots in a warm window and shade them from the hot sun at all times. Sprinkle the foliage overhead but very seldom, if at all, and only on a fine bright morning, as it will cause the leaves to spot and decay, if they are kept too damp. Water the plants with tepid rain water if possible. Put a stake to support the growth early, as the growth is very brittle and easily damaged.

FALL AND WINTER CARE

When the plants are through flowering and show signs of dying down, give them less water until the foliage is quite yellow, when no more water should be given them. The pots, just as they are, should now be stood away in a cool, not too dry room or cellar, temperature about forty-five degrees, so as to keep the tubers dormant. They will require no water until spring, unless the place they are kept in is very dry, and then only a slight sprinkling. In March or April shake the tubers out of the soil, and start them as before mentioned.

I have kept tubers in the way described for seven or eight years and flowered them successfully. Letting the tubers stay in the soil in pots is much better than taking them out of the soil in the fall and keeping them in sand, if room can be found for storing them in the way I have mentioned.

Tubers may be started indoors and the plants set out about the second week in June. They like a fairly rich, light loamy soil, well drained, and a not too sunny position. They are not very reliable plants for bedding out. The tubers should be dug early in the autumn, before frost, and the tubers packed in dry sand or soil in shallow boxes, and placed away for the winter in the same way as for those grown in pots.

If a large number of plants are required it would be best to get a packet of seed of a good strain and raise them from seed. The tubers will not be large enough to flower the first year from seed started in a window. By sowing the seed in February or March, tubers about half an inch in diameter can be grown. Sow the seed in a shallow, well drained seed pan or box with holes through the bottom to allow of free drainage. Place about an inch of broken flower pot or lump charcoal in the bottom, over this place a layer of moss or fibrous soil. Fill the pan or box nearly level full with finer soil, with half an inch in depth of very fine soil on the surface. A soil composed of four or five parts of loamy potting soil, one part sand, one part leaf mould, one part of fine lump charcoal, will make a good compost for the seed. The surface of the soil should be quite level and fairly firm.

SOWING THE SEED

Sow the seed broadcast, rather thickly on the surface. The seed is very fine and should be barely covered with a very fine covering of light material, put on carefully with the fingers and thumb. I have found a covering of one part of dry leaf mould, one part of fine sand, and one part of dust charcoal mixed well together, a good covering for the seed. A piece of glass whitened over lightly with white wash should be placed over the box. The glass should be tilted just a little to admit a small quantity of air. Later on, when germination starts, more air and light should be given, but the seed must not be exposed to the hot sun at any time. Water the seed very carefully with a very fine spray so as not to rinse. The box or pan may be stood in about two inches of water in a large tub, and watered by absorption if a fine sprinkler cannot be had.

When the seedlings are large enough to handle they may be transplanted into shallow, well drained boxes in a compost of four or five parts loamy potting soil, one part sand, and one part leaf mould. They can be potted later into three inch pots in the soil recommended for the large tubers in pots. The autumn and winter treatment of the small tubers is very much the same as given for the flowering tubers.

Careful attention to the ventilation of hot beds is one of the important means of making plants stocky.

Many house plants suffer from a neglect to water regularly. Some varieties that are kept in sunny windows require water every day.

Growing Tomatoes Under Glass

Archibald H. Walker, Macdonald College, Quebec

POSSIBLY the greater number of the readers of The Canadian Horticulturist have more or less knowledge of how the crop is grown under glass. This article is intended more for those who are not so well versed and just feeling their way. At the same time there may be some phase of this subject of interest to all.

During the past five years a large number of experiments have been conducted here with tomatoes. Those which I deal with are perhaps of more value to the grower than any other.

Experiments were conducted for three years to determine whether it were possible to have tomatoes from October until July without a break, and, if it were possible, whether fruit would be had in sufficient quantity to make it pay. We found, however, that while we had excellent fall and early winter and spring crops, our plantations intended for a winter crop were failures from a paying standpoint, therefore I have no hesitation in saying to those interested in tomato growing never to attempt planting with a view to commence picking fruit say by the middle of January, because you will surely be disappointed. The weather conditions during November and December are such that it is next to impossible to get any fruit as all growth is weak and drawn through lack of sunlight or even good daylight at times. Consequently the flower trusses, or rather what would have been flower trusses at a different season, were weak and the flowers, if any, imperfect, the result being a crop of foliage which so far there is no demand for on the market.

GROWING TWO CROPS

Experience has shown me that two crops can easily be taken from the same house in the year when handled in the following way. Seeds sown not later than July 1st will give plants fit to bench up from 3½ inch pots by August 1st, setting the plants 18 inches apart each way. "Nothing is gained by closer or wider planting." The first fruits are ripe by the second week in October, and the crop lasts until the middle of January. In the meantime another sowing has been made on October 25th, and the plants carried over in 3½ inch pots, and by the time you have the house cleaned out and benches in shape for replanting these plants are just the right size, averaging one foot in height. Ripe fruits are obtained from this planting by the third week in April, the crop lasting almost until fruit is obtainable from outdoors. Handled in this way the house is under crop almost the full twelve months. The spring crop finishing up in July sometimes gives time to clear out the old soil and bring in the new.

Too rich a soil is not desirable as too rank a growth will be made. On the other hand good results are not obtained from a poor soil, especially when you intend to take both fall and spring crops from the same soil. What I would consider the best possible soil would be rotted sod, "loamy." Add to this a good sprinkling of bone meal. Such a soil will carry the crop through in excellent shape. For the spring crop simply dig in a fairly heavy dressing of well-rotted manure and another sprinkling of bone meal. Such a soil will carry your second crop nicely.

The question is often asked me: Does it pay to grow tomatoes under glass? I am not prepared to say at this juncture just what money there is in this crop per square foot of bench area, as there are so many items to be considered, such as express charges, commission, crates, boxes, etc., but I will give the accurate weight of fruit taken from one house, the crop being just finished, the bench area of which is 725 square feet. The fruit weighs close to 1,900 lbs., being a little better than 2½ lbs. per square foot. The wholesale prices obtained were from 20 to 25 cents a pound. The spring crop from the same house should be just as heavy, with prices much about the same. This should give a total weight per square fot of something like five and a quarter pounds. I leave the reader to judge how this compares with other greenhouse crops.

In conclusion, I may say that I did not consider it necessary to explain all the details in conection with the handling of this crop. Should any one desire fuller information I will be glad to give such privately or through The Canadian Horticulturist.

How to Make and Handle a Hotbed

John Gall, Weston, Ont.

IN making a hotbed, the first step is to choose a good situation on the south side of a building, wall or close board fence, where the cold winds from the north will be broken and all the sunshine possible will be obtained. After deciding on the site, the frame should be made. A simple frame may be made out of two-inch planks. It should be constructed in such a manner that it can be raised if necessary should the plants get too close to the glass. The frame should at least be six inches higher at the back than at the front, in order that the rain will run off readily and that the plants get more sunshine. The sashes generally used are three feet by six. The most satisfactory material for use in hotbed sash is double thick, second quality glass; sashes composed of this material suffer comparatively little breakage.

A hotbed may be made either above or below ground. If above ground, it may be made in any situation where the water is not likely to lie. The one below ground is usually preferable if it can be made where the land is high and well drained. To make the latter, the soil should be taken out to the depth of about two feet and about three feet wider than the frame so that there will be room for banking.

The banking is a very important part of the construction of a hotbed, as the conservation of heat in the bed depends very much upon it. Much labor will be saved where the necessary excavation for the frame has been dug in the fall when there is no frost in the ground.

Horse manure is the best to use in making the hotbed, and it should be quite fresh, not cold and rotten, and not already heated. It should be piled near where the hotbed is to be, and when it begins to heat it should be turned to make it of more uniform consistency. Five or six days after turning it should be quite hot and ready for use.

The bed is started from one end and the manure shaken in from a fork so that the long and short manure may be well mixed. When one layer is made it should be tramped well and then another layer started, and so on, tramping each layer well until the manure is the required depth. After the manure has been put in, the frame should be placed on, and then from four to about six inches more manure put in and banked well around the sides of the frame, both inside and out. Outside, the manure should be banked to the top of the frame and from twelve to fifteen inches in width. The bed is now ready for the lights. The frame should be so constructed that they will fit snugly. Shelters made of one-inch lumber, the same size as the sashes, are useful for covering them, as they help to conserve the heat in cold weather.

THE SOIL TO USE

In two or three days the sash should be removed, the manure given a tramp all over, making it level where necessary, and then the soil put on. To get the best results, the soil should be of a rich character so that it will not bake. The soil should be from five to six inches in depth over the manure, and it is better to have it a little deep than too shallow. The soil when it is put in should come near the top of the frame at the lower side, as the manure will sink considerably, and the nearer the

Tomatoes as Grown Under Glass in the Niagara District.

plants are to the glass, later on the stockier they will be.

In five or six days the hotbed will be ready for the seed, but it is necessary to wait until the manure has cooled a little and the temperature has fallen to between eighty and ninety degrees Fahrenheit. During this time, when it is hottest, some of the heat may be allowed to escape by raising the sashes a little every day. One should not be in a hurry to sow the seed, as if the temperature is too high the results will not be satisfactory. When the bed has reached the right temperature the soil should be spaded over a couple of times and the surface levelled and made fine with the rake.

The bed is now ready for sowing. The seed is usually sown in rows about four inches apart and about the same depth as outside. When the young plants come up the frame should be kept sufficiently aired by raising the back of the sash to prevent the plants from getting weakly or spindly, when they are apt to damp off. Care should be taken to prevent their being chilled or frozen. The soil must be watered when necessary, care being taken not to overdo this, as the plants would then be likely to damp off. As soon as the plants are large enough they are pricked out into another sash or frame.

Growing Early Tomatoes

A. H. MacLennan, O.A.C., Guelph, Ont.

The whole problem of growing early tomatoes is to get fruit before anyone else. There are several factors essential for success: First, a day temperature of eighty to ninety degrees Fahrenheit and not below sixty-five degrees Fahrenheit at night. Good tomatoes have been grown at seventy-five degrees, nevertheless eighty to ninety degrees is the optimum temperature. Second, the grower must be near a market or at least have the facilities for easy marketing. Third, the seed should be planted in February in a hotbed or greenhouse.

The seed should be selected the season before and taken from those plants which show the greatest smoothness and have the earliest maturity. Prolificness in early tomato culture is a tertiary consideration. If the seed is to be purchased the grower should get the best obtainable regardless of its price; but other things being equal, the home-grown seed is the best.

The best soil is sandy or a sandy loam with a porous clay subsoil, because this type of soil is earlier than others and because the plant must have an even and equal supply of moisture, otherwise it will "go down." This is overcome in greenhouses by sub-irrigation and is modified out of doors by drainage. The tomato is a large plant with a small and short root system, therefore the reason for constant and even supply of moisture and plant food. A small quantity of nitrate of soda may be applied to the plant in the early part of its life, but not later or it will produce stem and leaf to the detriment of the fruit. The nitrate of soda should not touch the plant, otherwise it will burn the tissues.

The soil should be in the finest possible tilth before setting the plants and farmyard manure should be plowed in the fall before. Or another plan is to sow rye in the fall so as to get about six inches growth to plow in in the spring. This will warm the soil by decomposition besides supplying humus and rendering the soil tillable a week earlier than usual.

GROWING YOUNG PLANTS

Among the methods of growing young plants are the following: Sow thinly six to eight weeks before field planting in hotbed or greenhouse in rows three to six inches apart, and set in the field without transplanting. This method will produce spindly plants with poor root system.

Another method is to sow ten to twelve seeds to one inch of furrow, rows two inches apart, seven to eight weeks before planting in field, transplant once one and a half to two inches apart each way.

A third plan is to sow as in previous plan nine weeks before planting, transplant two inches by two inches, then four inches by four inches as the plants crowd, into three to five inch pots.

A fourth is to sow ten to twelve weeks before planting and give three or four shifts; finally into five inch pots or quart berry boxes. The crown cluster of buds should be removed as soon as it appears. This will cause the axillary buds and branches to develop rapids and each to produce flowers.

The cost of raising the plants increases with the number of times they are transplanted, but results show a more hardy, vigorous and healthy plant. When the last method is followed, the crown cluster of flowers should be removed as soon as they appear. This will cause the plant to branch and throw off its early vigor into the stem and leaf growth and form several flower clusters at the ends of the lateral branches. The plant should be set an inch or two deeper in the field than in the nursery.

Staking is not advised commercially, but if it is done there will be no culls and dirty tomatoes, and cultivation may be continued later; which may be emphasized as an important feature in the early part of the season owing to the plant's requiring a constant and even supply of moisture. The plants should be set about three and a half feet by four feet, or four feet by four feet, but if staked and pruned to one stem they may be set two feet by two feet, and ripe fruit may be expected in from six to seven weeks.

The tools we use in the garden are very few and cheap, but they need to be strong and able to stand the weather and not apt to break.—Dr. H. M. Speechly, Pilot Mound, Man.

The Canadian Horticulturist

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Horticultural Magazine in the Dominion

OFFICIAL ORGAN OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS

H. BRONSON COWAN, Managing Director

1. The Canadian Horticulturist is published on the 25th day of the month preceding date of issue.

2. Subscription price in Canada and Great Britain, 60 cents a year; two years, $1.00. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

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4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates $1.25 an Inch. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

7. Articles and Illustrations for publication will be thankfully received by the Editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912	9,988
February, 1912	10,437
March, 1912	10,877
April, 1912	11,788
May, 1912	12,112
June, 1912	10,946
July, 1912	10,986
August, 1912	11,148
September, 1912	10,997
October, 1912	10,971
November, 1912	11,162
December, 1912	11,144
	132,556

Average each issue in				1907, 6,627
"	"	"	"	1908, 8,695
"	"	"	"	1909, 8,970
"	"	"	"	1910, 9,067
"	"	"	"	1911, 9,541
"	"	"	"	1912, 11,046

February, 1913 11,106

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser is this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

SPRAYING SUCCESS

Success in the operation of spraying will be obtained only when the operator knows when the material should be put on and how it should be applied. More failures result from lack of knowledge on these two points than from any others. The spray should be applied in the form of a very fine mist and the nozzle should be so manipulated that every part of the foliage and fruit will be uniformly covered with fine dots of the spray. It is not necessary that the foliage and fruit should be actually coated with the spray, but every portion should be thickly peppered with it.

As a rule the higher and inner portions of the tree are not sufficiently sprayed. The fact that the liquid may actually be dripping from the lower branches will not suffice to ensure satisfactory results as long as the upper parts or inner portions of the tree have not received the necessary quantity. One of the chief defects of hand pumps is the fact that the pressure maintained is apt to be insufficient. For this reason gasoline or other power outfits, supplying a pressure of one hundred and twenty-five to one hundred and fifty pounds, generally give the best results.

When applying the liquid consideration should be given to the size of the trees. Small trees eight to ten years old do not require more than three or four gallons to a tree. Larger trees may need five to seven gallons and even more. Some trees of considerable height need as high as fifteen gallons to ensure thorough treatment. Growers who neglect to watch such points as these have only themselves to blame if success does not attend their efforts. Application to the various experiment stations will enable any grower to obtain free of cost all necessary information dealing with the practice of spraying. When opportunities of this character are neglected and failure results growers need not look elsewhere for the cause.

EXPRESS RATES

The recently published statistics of the earnings of the various express companies in Canada show further reason why fruit growers should continue to press their demands for a thorough revision of existing rates and a material reduction in them. The gross receipts from operation of the three Canadian companies last year were practically eleven million dollars. When the express privileges, amounting to four million eight hundred and ninety-two thousand two hundred and forty-two dollars, are deducted, the operating revenue is shown to have been six million one hundred and two thousand one hundred and seventy-five dollars. As the operating expenses were four million eight hundred and eighty thousand one hundred and twenty, the net revenue was one million two hundred and twenty-two thousand and fifty-five. These earnings enabled the Canadian Express Company to show dividends on its capital liability of sixteen decimal six per cent., the Canadian Northern Express Company dividends of nineteen decimal two per cent. and the Dominion Express Company dividends of thirty-one decimal six. The average per cent. of the three companies was around twenty-two per cent. in spite of the fact that their stock has been heavily watered.

These earnings were made out of the public. How, then, are the public treated by the express companies? Evidence abounds which shows that wherever they feel that they have the power the companies are ready to bleed the public white. Take, out of many examples that might be cited, one that was given by Mr. G. E. McIntosh at the recent short course in horticulture at the Guelph College. Mr. McIntosh stated that the express rate from Sarnia to Winnipeg is two dollars ninety cents. From Forest to Winnipeg it is four dollars twenty cents. Yet Forest is twenty-three miles nearer to Winnipeg by rail than is Sarnia. The explanation is that Sarnia is a competing point where shippers have their choice of different routes. Such discrimination should not be allowed to continue. It is evident that the express companies can stand material reductions in rates without hardship. Fruit growers throughout Canada owe it to themselves to continue to press for such reductions.

SOCIETY OPTIONS

Every year the directors of horticultural societies in Ontario have to struggle with the problem of arranging option lists which will be attractive to their members and a source of strength to their societies. Some societies succeed with this work better than others. This is due generally to the fact that they are fortunate in having members of wide experience on whom they can call for information and assistance. Many societies also succeed in obtaining better terms from seedsmen, at home and abroad, than others who do not go into the matter so thoroughly or buy on as large a scale.

Is there not here an opportunity for the Ontario Horticultural Association to assist the individual societies? A central committee might easily be formed composed of the most experienced horticultural authorities available who could obtain from the different societies a statement of the amounts they could afford to spend in premiums. With this information before it, such a committee could go into the matter thoroughly and prepare premium lists suitable for different societies according to their means. Such an arrangement would make it possible also for the association to purchase supplies in larger quantities and at correspondingly lower prices than could the local societies. There need be nothing in such an arrangement that would prevent societies from supplementing such lists should they so desire. We would suggest that this matter be brought up for discussion at the next convention of the association.

PARCELS POST A SUCCESS

Even the most enthusiastic advocates of parcels post in the United States did not anticipate that the system would be taken advantage of by the public to the extent that it has been since it came into operation at the first of the year. The flood of parcels that nearly inundated the post offices of the country with the establishment of the system has continued not only unabated, but with increasing depth. According to a report from Washington, the number of parcels transmitted through the mails in January reached the enormous sum of forty millions. The number was greater in the last half of the month than

in the first half, showing an increasing popularity for the new service.

The total number of parcels post stamps printed and distributed up to January the twenty-second was three hundred and thirty-nine million five hundred thousand, with a total value exceeding eighteen million dollars. In order to meet the demand the Federal Bureau of Engraving has been forced to print the stamps at the rate of twelve millions a day. One of the most beneficial results of the new service is the fact that the express companies have been forced to make many important reductions in their rates in order that they may hold their trade. Our Canadian Government, in view of the fact that the system in the United States is already a demonstrated success, should lose no time in dealing with this matter as thoroughly as its importance deserves.

INCREASING LAND VALUES

Have you ever noticed that when fruit growers demonstrate that fruit can be grown profitably in any section the main profit that results from their discovery goes to the landowner rather than to the grower? The larger the returns obtained from fruit in any district the higher land values rise. This proves a benefit to the man who has land to sell, but a hardship to all who desire to buy, as well as to those who do buy. This is because it makes it more difficult for men to obtain fruit land and compels those who do make purchasers to invest such large sums of money in their land they have but little left for their labor after fair interest charges have been allowed.

One of the worst features of this condition is the fact that there is always a tendency to anticipate increases in land values. The result is that land is apt to be held at prices which are greater than it can produce crops for profitably. This speculative element thus imposes an extra burden on the would-be grower. High land values are a benefit only to the man who has land to sell. They are a burden on the buyer and on the grower.

This condition is adding weight to the demand for a reform in our system of taxation which will make the land pay a larger share of taxes. Such a change would tend to destroy the speculative value of land and to force land held for speculative purposes into more general use. One reason why the western provinces have gone as far as they have in the taxation of land values is because speculation in land in the west has been carried to extremes.

The real fruit grower is not benefited by high land values. The only advantage he can reap from them is by selling his land. He then ceases to be a fruit grower. Even were he to attempt to start fruit growing again he would be penalized by the same condition. It is an encouraging sign of the times that this matter is being given more serious consideration all through Canada than it has been in the past.

The article in this issue dealing with the importance of shade trees on our highways is well worthy of serious consideration by all who are interested in horticultural and civic improvement. Considering the moderate expense involved nothing is more neglected in most municipalities than the planting of shade trees. We have reached the point in Canada where these matters should be given more attention. Our horticultural societies should assist in keeping this matter to the front.

PUBLISHER'S DESK

The illustration on our front cover was obtained in the orchard of Mr. Brown, Mill Road, Barrie. It shows one of many hundred old and formerly neglected orchards in Ontario that have been pruned and sprayed and cultivated during the past few years, and thus again been placed on a paying basis. It is typical of the revival in interest now manifest in the orchards of the province.

The April issue of The Canadian Horticulturist will be our THIRD ANNUAL SPRING PLANTING AND GARDENING NUMBER. Naturally its floral features will be emphasized. April is the month when the spring gardening fever seizes most of us. We long to get at work with our gardening tools and look forward with pleasurable anticipation to what the season has in store for us. Our April issue will be in harmony with this impulse of new life which comes with the spring. A feature of it will be a well illustrated article by Mr. W. H. Smith of Walkerville, describing the gardens of Walkerville. This is one of Ontario's most attractive cities from a horticultural standpoint. There will be another article by Mr. F. E. Buck, of the Central Experimental Farm, dealing with the Perennial Border and Its Arrangement. This also will be well illustrated. Mr. R. S. Rose, of Peterboro, will have a page of timely notes dealing with April work in the flower garden and giving timely cultural hints and suggestions. A first prize essay on Rose Growing by Mr. J. M. Hull, of Hamilton, will be a feature, as will be articles by Messrs. J. H. Bennett, of Barrie, J. MacPherson Ross, of Toronto, Wm. Hunt, of Guelph, and other well-known contributors.

The fruit interests of our April issue will also be strong. These will include an article describing the methods of successful pear growers by Allan G. Bland, of the Ontario Department of Agriculture, and an interesting article describing the culture of Old Country Gooseberries, contributed by Mr. Wm. Dick, of Brant county, a successful grower of this class of small fruit. An article by Mr. R. S. Duncan, B.S.A., of Port Hope, will describe the satisfactory financial results that have followed the rejuvenation of old orchards in Northumberland and Durham counties. Other timely fruit articles will appear. A feature of the vegetable department will be an article by Mr. A. H. MacLennan, B.S.A., of the Guelph Agriculture College, dealing with the sterilization of soils for the growing of vegetables. This article, as well be practically all the others, will be well illustrated. Our April issue will equal all former standards. Watch for it.

Members of Horticultural Societies are habitually slow in handing in their memberships to the secretaries of their societies. Most people seem to wait until the spring is so far advanced that they naturally begin to think of their gardens, and thus are reminded of their duty to their society, before they do so. This dilatoriness on their part makes it impossible for their secretaries to renew their subscription to The Canadian Horticulturist as promptly as they otherwise would. In consequence we are sometimes compelled to cut off the subscriptions of many members of societies which have not been renewed simply because the people did not think about it in time. If, therefore, you have not renewed your membership to your local horticultural society, and do not want to miss a copy of The Canadian Horticulturist, we would suggest that you place yourself in touch with the secretary of your society without further delay and thus help him and help us and ensure for you the prompt receipt of The Canadian Horticulturist, of which we know you do not desire to miss a single copy.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Superintendent's Report*

J. Lockie Wilson, Toronto, Ont.

Our army of civic improvers in Ontario is increasing year by year. Upwards of 12,000 members of horticultural societies is the record for 1912. The majority of these have become dissatisfied with conditions as they are. With a clearer outlook and a desire for better things, they are now using their utmost endeavor to improve their own home surroundings with lawn and vine and flower and to gladden the hearts of others, that they, too, may be encouraged and inspired to do likewise.

Eight new societies have been organized since our last annual meeting. They are all starting in to work for the betterment of their different localities with a substantial membership.

A number of changes were made at the last session of the Legislature in the Act relating to our horticultural societies. In cities having over one hunderd thousand population two horticultural societies can now be organized, but in such case the maximum annual grant to each of such societies shall not exceed five hundred dollars. The grant of eight hundred dollars to cities having a population of over thirty thousand has also been repealed, and the legislative grant to societies which have been organized for over one year is now apportioned one-third on membership and two-thirds on expenditure. The grant to new societies for the first year of their existence remains the same as before, that is one dollar a member up to a maximum of seventy-five dollars.

The unit for division of the grant for 1912 was thirty-five and three-quarter cents on membership, and thirty and one-fifth on expenditure on the balance of the twelve thousand dollars left after providing for the grants to new societies and the $800 reserved for cities having a population of thirty thousand or over. This amount of eight hundred dollars, as stated above, will not be considered after this year. You will be pleased to note that the efforts of the directors of the Ontario Horticultural Association to have the legislative grant increased have been successful, a further appropriation of two thousand having been made by the Government, making the total now twelve thousand dollars.

*Extract from a report presented at last annual convention of the Ontario Horticultural Association.

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The Fertilizer Discussion Continued

That the discussion on the value of the use of fertilizers that has been in progress in the columns of The Canadian Horticulturist since the appearance of our November issue of an article on this subject by Dr. J. B. Dandeno, of Bowmanville, is being followed with interest, is indicated by the numerous articles on this subject we are receiving. Some of these letters appear in the front pages of this issue. The following additional letters, also, form part of the discussion:

HOME MIXING APPROVED

Editor, The Canadian Horticulturist: In the February issue of The Canadian Horticulturist, Mr. Innes, B.S.A., Manager of the Fertilizer Branch of The Wm. Davies Co., Limited, deals with the question, "Commercial Fertilizers." I take exception to his remarks regarding "home mixing," and his advising farmers to buy ready mixed goods. His statements are not in accordance with the practice in countries where commercial fertilizers are largely used, taking England and Germany for example. Nor are they in accordance with the recommendation of agricultural colleges or experimental farms of our country. Further I might add that in Nova Scotia, Mr. Innes's home province, more particularly in the Annapolis Valley, "home mixing" is extensively carried on.

The Federal Government demands that each sack of any fertilizer must be labelled with a guaranteed analysis of available plant food. Quoting Mr. Innes, "the guaranteed analysis does not in any way signify what materials are used to obtain the given percentages of nitrogen, phosphoric acid and potash.". Continuing, he says, "The degree of availability of the plant foods contained in any mixture is the most important factor to be taken into consideration when comparing the value of two fertilizers of the same analysis." From the foregoing statement it is easy to decide which is better, "home-mixed" or "ready-mixed."

In the "home-mixed" we arrive at the desired percentage of the different constituents, we also know the source of the different constituents and the "degree of availability." On the other hand with the ready mixed we know only the percentage of the different constituents, being entirely ignorant of the sources of the same further than the agent tells us, he invariably knowing little more about it than we know ourselves.

In his article Mr. Innes speaks also of "the poor results obtained by home-mixing." It would have been interesting had he cited some of these results. In the past few months I have interviewed several men on this identical question, men who have started mixing their own fertilizers, and they without exception were pleased with the results. It is a significant fact that few men who do their own mixing ever return to the use of the ready-mixed brands.

—Yours very truly,
T. O. Clark, B.S.A.,
Toronto, Ont.

FERTILIZERS COMMENDED.

Editor, The Canadian Horticulturist: I have read with interest the discussion on fertilizers commenced by Dr. Dandeno and Mr. Emslie, and would like to say a few words from the standpoint of an unprejudiced layman. Frankly, I was surprised

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Telephones: Main 2841; Residence, Park 951

Say you saw this ad. in The Canadian Horticulturist

to find that in this country there was any person having had experience with fertilizers and who had given them a fair chance—and I would emphasize this point—who was not assured of their value. By fertilizers I do not mean materials unloaded on a credulous farmer—if there are any such farmers—from which wonderful results were promised, but which were about as valuable as so much sand.

I can lay no claim to rank as an authority on these lines. Mr. Emslie, as representative of a concern of such magnitude, is in a position to command respect, while Dr. Dandeno can only hold a Doctor's degree from Harvard as the result of some creditable research work. From his statements, one is led to infer that this work concerned plant physiology or pathology, in which case his opinions should carry some weight.

But when a man, no matter of what authority, undertakes by a sweeping assertion to undermine an industry of such scope and value, not only to the manufacturer and farmer, but to the world in general—he takes a serious step indeed, and the burden of proof lies with Dr. Dandeno entirely. For years private individuals, manufacturers, and governments have been making extensive tests on soils and fertilizers.

The fertilizer and allied trades are not responsible for the term "Plant food." Scientists of greater repute that Dr. Dandeno can ever hope to attain, employed the term. Their experiments led to the deduction that plants contained carbon, hydrogen, oxygen, phosphorus, nitrogen, potash, in great amount, with small quantities of other elements. The inference was that they obtained them from one of two sources—from the air or the soil. How they obtained it mattered little. As a matter of fact, nobody knows, any more than they know how or why a candle burns, or how the oxygen of the air acts on the human blood. Of course scientific answers may be given, but when one comes to the basic question, "How do you know?" it must be admitted that theories only can be advanced.

So it is in this controversy. Dr. Dandeno preaches the theory of bacterial action, though even at that he admits that all these bacteria can do is to act as agents for the transfer of chemical elements or compounds from soil or air to the plant. It would be interesting to hear on what facts or experiments—aside from negative fertilizer results—he bases his claims. In neither of the two communications published has he done more than utter sweeping generalities which, without corroborative evidence, are of little or no value.

FERTILIZER CHAMPIONS

The opposite side of the case has been taken, times without number, by government officials, interested parties, and these can be backed by thousands of farmers who have had results that warrant their championing fertilizers. For the one isolated case of negative results cited by Dr. Dandeno, thousands of experiments have shown improved yields from the use of fertilizer. Why this is, I don't undertake to say. But the question comes if the action is bacterial, why should barnyard manure not give better results alone than, say, Nitrate of Soda? By the way, I have yet to hear any advocate of fertilizer condemn the use of barnyard manure.

The farmers are just waking up to the fact that farming is one of the most scientific businesses in the world, and are

Douglas Gardens

Oakville, Ontario

We invite special attention, for Spring Planting, to the following:

PERENNIALS—Aquilegia (Columbine), Hardy Asters (Michaelmas Daisies), Astilbe (Spiraea), Shasta Daisies, Coreopsis, Delphiniums (Larkspurs), Hemerocallis (Day Lily), Hibiscus, Kniphofia (Torch Lily), Phlox, Physostegia (False Dragon's Head), and Spiraea (Meadow Sweet).

BULBS and TUBERS—Cannas, Dahlias, and Gladioli.

BEDDING PLANTS—Antirrhinum (Snapdragon), China Asters, Geraniums, Salvias, and Stocks.

These are all described in our Spring Planting List, a copy of which will be mailed free on application.

JOHN CAVERS

Fruit Trees, Shade Trees and Ornamentals

We have a full stock of the leading sorts of fruit trees and bush fruits. Our stock of **APPLES, PEARS, CHERRIES** and **PLUMS** is exceptionally fine. Should you not decide now to plant that orchard this spring? Each year saved is one season gained. We give each order special care, and know that for nice rooting and grading **OUR GOODS ARE UNEXCELLED.**

We breed our trees as much as possible from selected mother trees, and are now preparing to engage an expert Horticulturist, who will devote his entire time and skill to selecting breeding trees. Will it not pay you to deal with an up-to-date firm? We know it will be to our mutual advantage.

OUR RODERICK CAMERON has returned from Great Britain and the Continent, bringing with him a splendid collection of the very latest creations in hardy herbaceous perennials, Roses, Shrubs, Evergreens, etc., from the best English, Scotch and Continental Nurseries, including the **MACKENDRICK COLLECTION OF ROSES,** embracing the finest of hardy sorts. The majority of these cannot be obtained elsewhere in Canada.

HORTICULTURAL SOCIETIES and others would do well to get our collections, as they have been chosen with great care by a man who has had a lifelong experience amongst the flowers.

THE AUBURN NURSERIES, Ltd.

SIMCOE **Head Office: QUEENSTON** **OAKVILLE**

This is the Book that will show you how you can have a

BEAUTIFUL OLD ENGLISH GARDEN

THE OLD ENGLISH GARDEN owes much of its charm to the beauty of its simple herbaceous plants.

KELWAY'S COLOUR BORDERS of Paeonies, Delphiniums, Pyrethrums, Gaillardias and the like will enable you to reproduce this picturesque effect under almost all conditions of soil and climate. Borders are planned to fill any space, and on receipt of dimensions, carefully selected plants are sent beautifully packed, labelled and numbered in order for planting.

The cost is $6.00 for every 10 square yards.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed free on application to

KELWAY & SON
CARE OF
The Canadian Horticulturist
Peterboro, Ontario

Write for a copy of this useful book
It comes to you by return mail free

Kelway's Perennials
For
Canadian Gardens

Direct from
KELWAY & SON
The Royal Horticulturists
LANGPORT ENGLAND

commencing to apply the modern method of scientific management and costs to th business. The farmer who puts on t one side his returns from his crops a against that sets the labor and other cos for each particular crop, instead of bulkin the whole farm, and charging his ov labor as worth nothing, is constantly the watch for opportunities to increa profits by the two available methods, i creased output and reduced material a labor charges. That man is finding o the value of such aids as fertilizer. Fu thermore, he is studying their methods application. When he sees two plots ground, identical in quality, so far as c be judged, from one of which increas returns are given from the use of fert izers, and sees that increase is more th enough to pay for the fertilizer used, comes to the inevitable conclusion th the fertilizer is worth using.

Now I am safe in saying that I kn at least as well as Dr. Dandeno how th increased return was brought about. other words, I do not know. Whether t nitrogen, phosphorus, and potassium co tained in the plant and presumably tak from the ground are a portion of what w put in by means of the fertilizer, or wh ther they are part of the original soil, is impossible to decide. Perhaps bacte helped the plant to take up this materi perhaps the material added as fertiliz acted as a catalyser—that is, helped t reaction without entering into it—as it h been claimed that iron, maganese, a chromium do. But the fact remains th the plot fertilized gave more and bett crops; and the further fact remains th on continued, even if decreased, fertili tion, that plot will continue to yield sat factory crops; whereas it has been prov beyond a doubt that continued croppi without fertilization will soon result decreased yields.

But after all, the discussion of theori is aside from the point of issue. T farmer is trying to increase his profi He has found that fertilizer will help h to do that. If he can find anything el as efficient, he is ready to employ it.

The iconoclastic utterances of Dr. Da deno are not only without any proof, b give no hint as to a remedy for the alleg evil. If Dr. Dandeno, instead of attemp ing to belittle the results attained others, and befogging the minds of tho who thought they had begun to see ligh would come forward with a substitute f present fertilizing methods, he would of more value to the community. Possib he has one and I have forestalled his a nouncement of it. Perhaps his article a its discussion only lead up to a drama disclosure to the world of epoch-maki discoveries. Let us hope so. For t man who could grow Dr. Dandeno's ba teria, crop them, put them up in ne packages ready for application—by se drill or hypodermic—could command su a market that he would drive the fertiliz men out of business in a month.

In closing, let me say that this lett is not written for criticism. I have e deavored, in so far as is possible, to avo personalities and statements that could twisted to suit anyone's purpose. So th if this comes to the eyes of Dr. Danden the only answer requested is some fac or figures that will tend to substantia his statements.

Leonard T. Acton, M.A.,
Clarkson, Ont

RESULTS FROM FERTILIZERS.

Editor, The Canadian Horticulturist:
gave me great pleasure reading over D Dandeno's criticisms. I fancy many

Where There is Condensation

—there is need for a Morehead Steam Trap. Condensation in steam lines is akin to matter out of place—means wasted energy.

If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. **Ask for Trial Trap.**

CANADIAN MOREHEAD M'F'G CO., Limited
WOODSTOCK, ONT.

CANADIAN REPRESENTATIVES:—George W. Cole, Woodstock, Ont.; Robert S. Bickle, Winnipeg, Man.; H. E. Kirkham, Montreal, Que.; Robert Hamilton, Vancouver, B. C.

Greenhouse Glass

We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
Busby Lane	Mercer St.	Market St.	Powell St.

Pilkington Bros., Limited

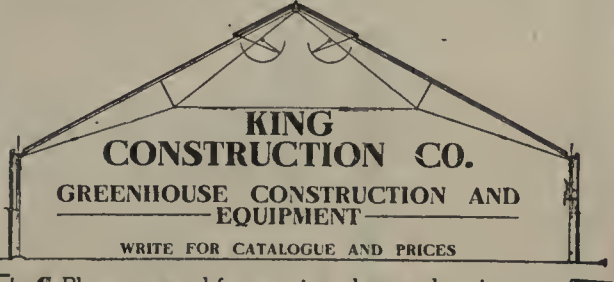
Works at St. Helens, Eng.

KING GREENHOUSES

Are the most

MODERN AND PERMANENT

Greenhouses that can be constructed. Years of actual test and the experience of large and small growers have gained for our houses the reputation of being the most satisfactory ever erected for vegetable or flower growing, or private conservatories.



¶ Plans prepared for complete plants and equipment at a moderate cost: all or part of the necessary materials supplied and houses of any size erected under our personal supervision if desired by builder.

¶ Write and tell us the kind of houses you desire to erect or ask for question blank and we will mail you our descriptive bulletin by return of mail.

THE KING CONSTRUCTION CO.
Cor. Dovercourt Rd. and Sudbury St., TORONTO, ONT.

Mention The Canadian Horticulturist when writing.

FERTILIZER

	Registered under Number
Lesage Fertilizer for Grain and Wheat	446
Lesage Fertilizer for Fruit and Vine	447
Lesage Fertilizer Special for Tobacco	448
Quebec Special for all Kinds of Crops	331
Fine Ground Bone	330
Thomas Phosphate Powder (Caledonia)	338
Lesage Royal Potato Manure	449

For Catalogue and Prices write to

LESAGE PACKING & FERTILIZER COMPANY, Ltd.

Head Office: 53 St. Paul, MONTREAL

AGENTS WANTED

Progressive Jones Says :

"The Early Tomato Gets The Fat Price"

THEREFORE, we want the early tomato. I've just been reading a letter from F. G. Bridge of St. James Park, near London, Ont., who has had great success in growing early tomatoes. He says: "The

Harab FERTILIZERS

I purchased have done all claimed for them and more. Where I put Harab on Tomatoes, the fruit is larger and ripening early, and where I did not use the Fertilizer the fruit is very small and going to be late."

You can have just as great success with your tomatoes as Mr. Bridge, and scores of others, if you enrich your soil with Harab Fertilizers. Harab No. 12 contains just the amount of Nitrogen, Phosphoric Acid and Potash required to start the young tomato plant off right and push it to early maturity, increasing and improving the fruit as well.

My experience has shown that, while stable manures supply the humus to hold the moisture in the ground, they need the assistance of richer, well-balanced fertilizers to produce the biggest yield and to bring the tomatoes to early maturity. Mr. W. A. Thrasher of Sarnia states that he picked tomatoes ten days earlier from a plot treated with Harab Fertilizer than from an adjoining plot treated with stable manure.

I find from experience that soil fertilized with manure produces a large growth of vine, and while the vines may be loaded the fruit is undeveloped and ripens late, if at all. On the other hand where Harab No. 12 has been used, I find the vine development moderate, while the fruit is more plentiful, larger and ripens earlier.

Using the proper fertilizers means the early ripening of your tomatoes—and other vegetables—and the fat price for you. There are 14 different Harab Fertilizers, each one the best for its particular purpose. The Harris Abattoir have published a guide book, showing the correct fertilizers for all kinds of vegetables, fruits, field crops, berries, flowers and lawns. I strongly advise you to write for a copy.

Yours for the fat price,

Progressive Jones

The Harris Abattoir Co., Limited, Toronto

14

will have to be exercised in selecting th fruit. In as far as the package and pack ing are concerned, Mr. Dobson has thi part of the problem solved."

Mr. Dobson was also written to for in formation but a reply from him has no been received.

Vegetable Growers Plan Thei Work

Every branch of the Ontario Vegetabl Growers' Association was represented a the annual meeting of the association hel in Toronto early in February. It was d cided to continue the experiments in th growing of potatoes and peas for see distribution that have been conducted i Northern Ontario.

Standing field crop competitions, whic have been conducted with success in th past, will be continued during 1913. Th province will be divided into four district and prizes will be offered in each distric for the growing of celery, potatoes an onions. District prize winners will b eligible for entrance in a provincial com petition which will be conducted at th Canadian National Exhibition Toronto Four prizes will be given in each distric ranging from $10.00 to $25.00 each.

The following officers were elected:— President, C. W. Baker, Tamblings; firs vice-president, W. J. Kerr, Woodroffe; sec ond vice-president, F. F. Reeves, Humbe Bay; secretary-treasurer, J. Lockie Wilson Toronto; executive committee, the afore said officers, together with Thos. De worth, Weston; representative to the Can adian National Exhibition, Thos. De worth; representatives to the Horticu tural Show, W. J. Rush, F. F. Reeves Thos. Delworth and James Dandridge.

A resolution was passed expressing protest against the action of certain see dealers who have endeavored to prever the growers from purchasing seed direc from other growers. The resolution ex pressed the belief that such action on th part of the seedsmen partook of the na ure of a combine in restraint of trade.

Recent Catalogues

A number of excellent catalogues hav reached The Canadian Horticulturist du ing the past few weeks. These includ Kelway's Manual of Horticulture, whic possibly is not equalled by any other pul lication of the kind in the world. "Ced Acres Gladioli," by B. Hammond Tracey Wenham, Mass, "Hardy Herbaceou Plants," sometimes known as "Old Fash ioned Hardy Garden Flowers," from E. I Smith & Son, of The Helderleigh Nurse ies, Winona, Ontario; "Rennie's Seeds, issued by The Wm. Rennie Co., Toronto Ontario; "Bruce's Seeds for 1913," di tributed by John A. Bruce & Co., Limited Hamilton, Ontario; D. M. Ferry & Com pany's "Seed Annual for 1913," addres Windsor, Ontario; and "The Seed An nual," of Dupuy & Ferguson, Montrea Quebec.

British Columbia

The Dominion Government has acquire a tract of thirty-five acres in the Upp Columbia River valley and will establis an experimental fruit farm there for th purpose of testing various varieties o small and large fruits, grains, clovers an potatoes. The farm is located at Inve mere, about eighty miles south of Golde

Penticon fruit growers are forming wh

REX

Lime Sulphur Solution
Arsenate of Lead

THE ORIGINAL FRUIT TREE SPRAY

There were sold during the season of 1912, 50,000 (fifty gallon) Barrels REX LIME and SULPHUR SOLUTION, and 1,500,000 pounds REX ARSENATE OF LEAD.

THERE'S A REASON

For such an immense sale of REX goods. It is the "HIGH" Quality of the raw materials we are compelled to obtain to manufacture our perfect solution. This costs us more than 25% per barrel over the materials that our competitors see fit to use.

This will not permit us to compete in price with opposition, but we know we can give you 100% more value, and you have no sediment or mud, or waste material to pay for.

The Growers of the Half Car Load, FIRST PRIZE BOX APPLES, awarded to Northumberland and Durham, that were shown at the Fruit Show in Toronto, in November last, ALL USED REX SPRAY SOLUTIONS.

REX Lime Sulphur Solution, is the original **LIME SULPHUR** Solution placed upon the market. Made to-day as it was made Fourteen years ago. Always clear, without sediment or waste material, and every barrel being of the same Beaume test as any other barrel of Rex.

REX—Guaranteed to contain at least 25½ to 26½ per cent. Sulphur in Solution.

DON'T Waste your Money in using Home-Boiled or Solution with Sediment, which destroys your Pump Pistons and Cylinders.

REX Arsenate of Lead contains larger percentage Arsenate-Oxide with least amount of moisture. No water on top of packages, and readily mixing into the solution, staying longest in suspension without settling, while spraying.

To have perfect Fruit it is necessary to use the highest class materials, which means you must use REX.

Send for Free Information on Spraying and Care of Orchards

CANADA REX SPRAY COMPANY

BRIGHTON - - ONTARIO LIMITED

FACTORIES AT

Brighton, Ont.	Rochester, N.Y.	Benicia, Cal.	Wenatchee, Wash.
Omaha, Neb.	Toledo, Ohio.	North Yakima, Wash.	Payette, Idaho.

BASIC SLAG

Renovates Old Worn Out Pastures Without Re-Seeding

There are thousands of farmers in Ontario whose pastures have been worn out by the continued grazing of dairy stock. Such lands have been drained of fertility and now grow only poor, worthless vegetation. Clover has entirely disappeared. This need not continue. A dressing of Basic Slag applied broadcast at the rate of 1000 lbs. per acre will bring such pastures back into good heart, and double or treble their capacity for stock carrying. The effect of such an application should be apparent for four or five years.

Basic Slag is being used in thousands of tons in the Maritime Provinces and Quebec, and the consumption in Europe amounts to over two million tons per annum. It is therefore no untried Fertilizer. Every farmer from the Old Country knows about Basic Slag, but for your own satisfaction ask the Department of Agriculture Instructor for your district, or the editor of any farming journal as to its merits. Basic Slag is the ideal Fertilizer to apply to stiff clay lands, to wet, marshy fields and to all soils which have become sour. If you have any such pasture buy one ton of Basic Slag and broadcast it over two acres, applying it at the earliest opportunity—the sooner the better.

Until our selling arrangements in Ontario are completed, you can be supplied direct from the Factory at $20.00 per ton, freight prepaid to your nearest station—cash with order.

Make this experiment and you will feel grateful to us for bringing the merits of Basic Slag under your notice. An interesting pamphlet giving particulars of the results obtained by leading agriculturists from the use of Basic Slag, will be forwarded by post on application to

THE CROSS FERTILIZER CO., Ltd.
SYDNEY, N.S.

Or to their Sales Agents for

Western Ontario, MR. A. E. WARK, Wanstead
Eastern Ontario, MR. A. L. SMITH, 220 Alfred St., Kingston

your readers will smile at his logic regarding the whip and the horse, also the currycomb and the steer. How is it that he, a student of great ability, no doubt, tells us "that in carrying on experiments for eleven years with an orchard at the Geneva Experimental Station the result was that the trees in the experiment would be practically as well off in every respect had not an ounce of fertilizer been used?" Following that statment, I read the remarks of Dr. P. Stewart, another clever student, who has evidently made a study of the use of fertilizers, and he shows plainly that the application of fertilizers in an orchard had the effect of increasing the crop of apples.

Dr. Dandeno, in concluding his reply, says "the plant must answer." This is a very wise conclusion when doctors differ. In my case I am only too willing that the plants shall give the answer. I planted a portion of my garden to late potatoes. Before planting, I worked in a dressing of potash fertilizer at the rate of fifteen hundred pounds to the acre, and I took off a crop of good sound potatoes equal to four hundred and twenty bushels to the acre, and when digging them my neighbor said he never saw a better crop. In thanking you for the space, I will conclude with a very old saying—

"Starve the land, starve the plant;
Feed the land, feed the plant."

Chas. Jas. Fox, South London.

Ontario Peaches in Great Britain

It having been annouced in the daily press that the shipments of Ontario peaches to London, England, last year were not nearly so successful as those made the year previous. The Canadian Horticulturist wrote to the fruit divisions at Ottawa and Toronto for reliable information. The despatches in the daily papers claimed that many of the cases on arrival on the market in England had as much as twenty-five per cent. of their contents either partially or wholly damaged.

Mr. W. W. Moore, Chief of the Markets Division, of the Dominion Department of Agriculture, reported that the shipments had been practically all made by Mr. C. A. Dobson, of Jordan Station. Mr. Moore wrote in part:

"The total quantity of peaches exported was 8,443 single layer cases, compared with 3,934 cases in 1911, and 3,743 cases in 1910. We received reports on the condition of all the consignments landed in Great Britain last season, and they were favorable in every instance. I would not be surprised to learn, however, that the peaches did not stand up well after they reached the hands of the receivers, because our weather conditions in 1912 were not favorable to the production of keeping qualities in tender fruits."

Mr. Hodgetts wrote as follows: "The reports from our London Office were that there was more rot present last year than during the previous two seasons. This was accounted for, I believe, by the fact that sufficient care was not exercised in selecting the fruit, quite a number of the peaches being too green during the earlier shipments of Elbertas, and others too soft at the later stages. There is no doubt but that these shipments can be made to pay a very good profit, and owing to the increased production of peaches a considerable quantity of high-class fruit could be shipped out to the English markets to relieve the congestion here. The greatest care, however,

SPECIAL GUARANTEED

Lime-Sulphur Hydrometer

Both specific gravity and Beaume readings; submitted to Mr. Caesar O. A. C., Guelph, and reported "quite satisfactory."

Sent Postpaid on receipt of 80 cts.

PARKE & PARKE Wholesale Druggists HAMILTON, ONT.

Watch Them Grow

—the vegetables and flowers and field crops that spring from Ewing's Reliable Seeds!

They are lusty and vigorous, true to name and strong in the qualities that make each particular variety popular.

The new 1913 Catalogue of

EWING'S RELIABLE SEEDS

offers a selection that cannot be beaten—the good old favorites, and all the new and improved varieties that have made good.

Write for this Catalogue—it will certainly help you to choose the right seeds for bumper crops next year.

Then, if your dealer cannot supply you with the Ewing's Seeds you want, order from us direct.

WM. EWING & CO.,
Seedsmen
McGILL ST., MONTREAL.

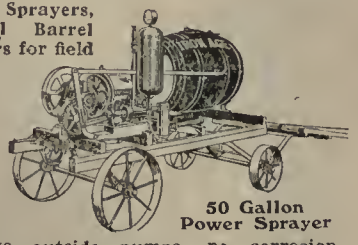
Shipped Ready For Use

No. 190 50 Gallon Horizontal

Sprayers $4 to $400

For large or small orchards, market gardens, potato farms, grain, mustard, tobacco, home and garden work, poultry plants, whitewashing, cleaning, cold-waterpainting, etc.

Bucket and Knapsack Sprayers, Horizontal and Vertical Barrel Sprayers, Traction Sprayers for field crops. Power Sprayers, 50, 100, 150, 250 gal. Furnished complete or in part to build up Sprayers already in use. Forty combinations.



50 Gallon Power Sprayer

IRON AGE

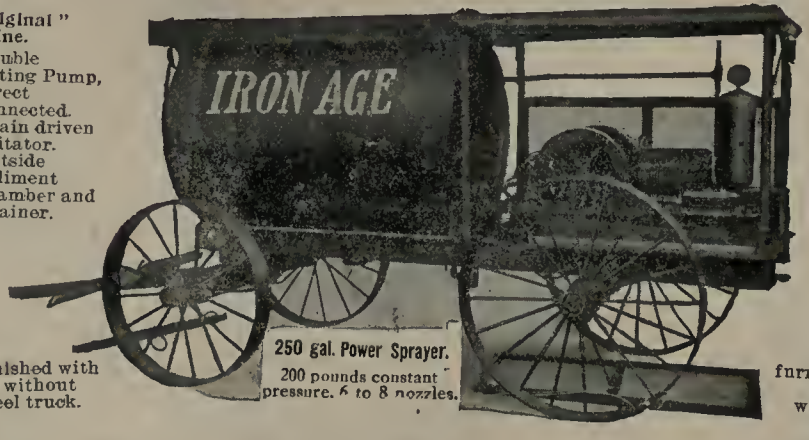
(Now Made in Canada)

Sprayers have outside pumps—no corrosion, pleasant for handling; easy to get at. The pumps have the greatest efficiency, that is, the least slippage of any pumps in use on any sprayer—this has been shown by disinterested tests. Unit Sprayers, so you build bigger when necessary. Ask your dealer to show them and write for new booklet "Spraying Vines, Trees and Bushes."

We also make full line Potato Machines, Garden Tools, etc.

THE BATEMAN-WILKINSON CO., Limited
460 Symington Avenue, TORONTO, ONTARIO

2-H. "Original" Engine. Double Acting Pump, direct connected. Chain driven agitator. Outside sediment chamber and strainer.



250 gal. Power Sprayer. 200 pounds constant pressure. 6 to 8 nozzles.

Furnished with or without steel truck.

Tower furnished if wanted.

Chick Success

The raising of chicks is not difficult when conditions are right. Try our way, and make this your most successful season. Feed

Pratts Baby Chick Food

for the first three weeks. No feed on earth will give the youngsters such a vigorous start, and the cost is but 1c per chick.

In boxes and bags, 25c up

Pratts White Diarrhea Remedy

25c 50c

prevents and cures the bowel troubles which are so common and cause such heavy loss. Just drop the tablets in the drinking water for all broods up to one week of age.

Pratts Poultry Regulator

should be mixed with the daily ration after the third week. It induces rapid growth and early maturity by keeping the digestive system in perfect condition.

25c, 50c, $1; 25-lb. Pail, $2.50

"Your money back if it fails"

Our products are sold by dealers everywhere, or

Pratt Food Company, of Canada, Limited

TORONTO - - ONTARIO

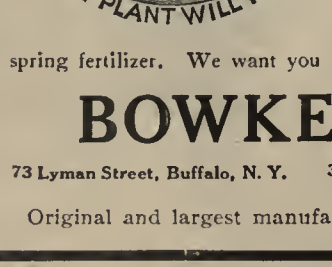
Pratts 160-Page Poultry Book 10c by mail

For the Land's Sake use

(REG. U. S. PAT. OFF.)

Bowker's Fertilizers

They enrich the earth and those who till it. Fertility plays such an important part in profitable farming that no farmer ought to take chances with his fertilizer. A reliable company and a high grade brand mean full value for the money, a full ration for the crop, and a full return at harvest time.



Bowker's Fertilizers are soluble, active, sure. They are backed by forty years of experience, the best materials, the best facilities and prompt service. Suitable for every crop and adapted to every pocketbook.

We want Agents in unoccupied territory. Write today for prices and terms; this may mean a good business for you if you act at once.

Write anyway for our illustrated catalogue and calendar before you buy your spring fertilizer. We want you to know what we can do.

BOWKER FERTILIZER COMPANY

73 Lyman Street, Buffalo, N. Y. **39 Chatham Street, Boston, Mass.**

Original and largest manufacturers of special fertilizers.

Consider Now

what it will cost and how much money you will save on your next season's fertilizer bill if you should buy your

Nitrate of Soda

and other Farm Chemicals and mix them yourself.

Your own brand MIXED AT HOME will be better than any patent brand and is sure to have in it just what you want.

Book of formulas and full instructions for Home Mixing will be sent

FREE OF COST

Dr. WILLIAM S. MYERS
Director of Chilean Nitrate Propaganda
17 Madison Ave., New York
No Branch Offices

is to be known as the Southern Okanagan Fruit Growers' Association. Last season the majority shipped through the various packing companies on a commission and consignment basis. The capital stock of the company will be one hundred thousand dollars in shares of one hundred dollars each. No shareholders will be allowed to vote proxies, or to have more than one vote, no matter how much stock they may hold.

In the vicinity of Cranbrook, the fruit growers have ordered some fifty thousand trees for planting this spring. An additional twenty thousand trees have been ordered by the growers near Marysville and Wardner. In these sections considerable areas of land formerly held under lease have been opened up for settlement and extensive planting of fruit trees is expected to result.

Lambton County

During the last few years a great deal has been heard about Lambton County as a coming fruit-growing district of great importance, but in order to realize its value it is necessary to drive up and down its concessions viewing the rich fertile plains and noting the signs of increasing prosperity. Only a few years ago stock raising was the great industry of Lambton County, and for that purpose large tracks of land were set apart. This method of farming continued for many years, resulting in our farmers buying out one another, until the country was thinly populated and large herds of cattle, feeding upon luxuriant grass, were in many parts the only signs of prosperity.

During the last few years an awakening has taken place. The people are finding that in their rich, deep plains they have the finest fruit producing land in Canada. Individuals in various parts of the country have proven it by their success in practically every department of fruit growing, which has resulted in arousing great interest in that line. Hundreds of acres of orchards were planted last year and this, and large areas already planted in past seasons are unrivalled in beauty and production.

It may be a surprise for many readers of THE CANADIAN HORTICULTURIST to know that Lambton is destined to become a great peach-producing district. Peach growing is no experiment here, as they have been grown successfully for over forty-five years in a small way. Orchards varying in size from one to ten acres had for many years been supplying the home demand until the curl leaf appeared among the orchards, and not knowing how to overcome it, the fruit growers became discouraged, and finally through neglect and decay the peach orchards passed off the scene, but with the knowledge of how to overcome the "leaf curl," planting has been resumed, and hundreds of acres of peach orchards are being planted with every assurance of success. In fact, orchards here have for years been annually producing thousands of baskets of the finest peaches.

Lambton is specially favored in its geographical position, as practically the whole of the county is south of the famous Niagara district, and, in addition to that, Lake Huron, which lies to the north and west of the county, wards off the frosts of spring and fall and moderates the cold of winter. The advantage of this is seen in the fact that the coldest days of the winter of 1911 in the north of the county was not below zero, and the year before three below.

Lambton has some thirty-five thousand acres of deep, rich sand and grand soil specially suited for the growing of peaches,

FIRST FOR QUALITY AND RESULTS

THOMSON'S
VINE, PLANT AND VEGETABLE
MANURE

WM THOMSON & SONS LTD CLOVENFORDS

UNRIVALLED

For Vines, Tomatoes, Cucumbers; Flowering, Foliage and Fruit Bearing Plants, Vegetables, Lawns, etc,

The result of many years' practical experience

PERFECT PLANT FOODS

Sold by Seedsmen and Nurserymen all over the world. Also

THOMSON'S SPECIAL
CHRYSANTHEMUM AND TOP-DRESSING MANURE

A Splendid Stimulant **Sells Well—Pays Well**

Write for our special offer to the Canadian Trade. Also for Agents' Circulars, Pamphlets, etc. to the Sole Makers

WILLIAM THOMSON & SONS, Ltd.
Tweed Vineyard, CLOVENFORDS, SCOTLAND

DON'T SACRIFICE!

If you have good apples to sell and you think you should get more than you are offered, do not sacrifice them. Ship them to Toronto. The Toronto market alone will require immense quantities of apples between now and spring.

We have cold storage facilities and can store your apples till a favorable price can be realized, thus protecting your interests. Write or wire us to-day.

DAWSON-ELLIOTT CO.
90 COLBORNE ST. - TORONTO

Strawberry Plants

After more than twenty years' experience in growing strawberries, I have found the Williams and Parson's Beauty the most productive and the best for the market. I am prepared to offer for early spring delivery, 500,000 plants of last year's growth of these two varieties. Also 250,000 plants of the following splendid kinds:

FOUNTAIN
WOLVERTON
MICHEL'S EARLY
SENATOR DUNLAP
LATE GIANT

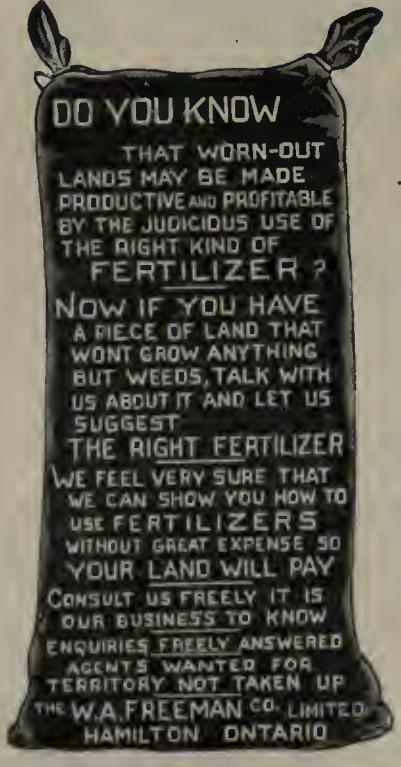
Price for any of these varieties, $5.00 per 1,000, or 75c per 100.

I have the best varieties of Red and Black Raspberries at $10 per 1,000; $1.50 per 100.

IF INTERESTED WRITE ME

WILLIAM WALKER, Box 15, Port Burwell, Ont.

Fertilize Your Lands



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GROFF'S "AMERICA" is now the leading commercial variety, in Europe, as well as in this country.

GROFF'S "PEACE" will be equally popular, when as well known.

GROFF'S "DAWN," "WAR," "PEACH-BLOW," "AFTERGLOW," and many other varieties will follow.

We have over 1,500 of choice GROFF Hybrids under number.

We are also testing many of the newer varieties originating in Europe, and anything worthy will be added to our list. Few of them in the past have secured a permanent place.

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Artistic Plans, Sketches furnished for all kinds of LANDSCAPE CONSTRUCTION WORK.

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PAEONIES best in Canada
Phlox and Oriental Poppies
10,000 Cuthbert Raspberries
Fruit and Ornamental Trees
Currants and Gooseberries

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Greater growth from the ground

Scientific soil cultivation gives bigger results, and you save time and lighten labor if your implements are

Planet Jr

Built by an actual farmer and manufacturer, whose more than 40 years' experience is behind every Planet Jr. They do thorough practical work. Light, strong, fully guaranteed.

No. 3 **Planet Jr Hill and Drill Seeder** sows all garden seed accurately in hills or drills. Sows in a narrow line making wheel-hoe cultivation quick and easy. Popular with farmers and gardeners everywhere.

Planet Jr Twelve-tooth Harrow, Cultivator, and Pulverizer is invaluable in strawberry and truck patches and the market garden. Its 12 chisel-shaped teeth and pulverizer leave the ground in finest condition without throwing dirt on plants.

FREE! An instructive 64-page illustrated catalogue!

For the asking you can get this book of valuable information on 55 latest implements for all crop-growing. You can't afford to miss it. **Send postal for it today!**

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while apples, pears, plums and grapes ca be grown on practically any of its six hu dred and fifty-nine thousand acres. Ro killing of the peach by frost has never bee known here, while the San Jose Scale h never yet made its appearance.

APPLES LEAD

Apples, however, are still the leadi fruit of Lambton, and many thousands trees are being planted every year. In th past the apple orchards were largely n glected, and but little interest was taken them, but now all is changed. The o apple orchards are being ploughed up an the trees pruned and sprayed until no many of the finest apple orchards of th province are to be found here, some wit an annual output of thousands of barre besides large quantities of other fruit. Th varieties chiefly grown are the Baldwi Spy, R. I. Greening, King, and Golde Russett.

In addition to the larger fruits berri and vegetables are extensively grown, an find a ready market in the north, wi which direct communication is given b boats sailing straight north from Sarni the port of Lambton.

Up to the present the county has bee free from real estate booms. Its success due entirely to the development of i natural resources. Here land suitable f growing peaches or any other kind of fru can be bought at prices ranging from fif dollars to one hundred dollars an acr according to its situation, and practical all of which is ready for planting.

Lambton has no less than six cooperati fruit growing associations, all working harmony with each other and promoting best they can the fruit growing industr In addition to this there are three larg canning factories with the prospect of ot ers next season, also ten large up-to-da evaporators, which are rushed to their u most capacity to handle the lower grades apples.

In view of the success already attaine and climatic conditions possessed, we loo forward with confidence to be in the ne future a second Niagara, a district f which we have the greatest admiration. W gratefully acknowledge the public spirit its leading citizens, to whom we owe muc for their unfailing efforts to help us o the highway to success. — D. Johnso Forest, Ont.

At the short course held last month a the Guelph Agricultural College, at whic were present representatives from the di ferent cooperative fruit growers' associ tions, it was agreed that Ontario shoul have a central organization for the purpos of handling the fruit crop in larger bul The fruit grower would thus realize bett returns without any increase in cost to co sumer. The following were appointed as committee to bring about this consolid tion: P. W. Hodgetts; Robt. Thompson, S Catharines; Elmer Lick, Oshawa; Ro Carey, Hamilton; C. W. Gurney, of Paris and Adam Brown, of Owen Sound. Thes will get to work at once and report to th local associations early in the year.

The Canadian Horticulturist is in re ceipt of a magnificent calendar entitled "The Grecian Idol," after the painting o Henry Ryland. It is being distributed b Geo. T. Dickerson, 1 Broadway, Ne York, United States representative of Ed ward T. Dickerson, Chatnay, France. I the ornamentals, and nursery and frui tree stocks of this firm are anything lik in quality the calendar referred to, thi firm's business is bound to increas rapidly

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse was'nt "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking,

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it.

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

Address me personally:

A. B. MORRIS, Manager, 1900 Washer Co., 357 Yonge St., Toronto, Can.

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Is this Trademark on all your Farm Implements?

IT STANDS FOR THE VERY BEST THAT SKILL AND EXPERIENCE CAN PRODUCE.

Grain Binders.	Hoe Drills.	Manure Spreaders.
Reapers.	Shoe Drills.	Cream Separators.
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WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

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H. PETERS

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Planet Jr. No. 41

Increase your fruit yield. Do thorough, scientific cultivating. You can cultivate quicker, with less labor, and with better results by using the

Planet Jr No. 41 Orchard and Universal Cultivator.

Built by a practical soil-tiller and manufacturer and backed by over 40 years' experience. Fully guaranteed.

No. 41 is the most efficient tool you can use for all broad cultivation—orchard, vineyard, or hopyard.

It is equipped with fruit tree shield, and side hitch for low trees. Carries teeth, sweeps, furrowers, plows, etc. Works deep or shallow, and cuts from 4 to 6½ feet wide. Convertible into disc harrow and alfalfa cultivator. Its special weeder attachment is the most efficient weeder ever invented.

FREE An instructive 64-page illustrated catalogue

Write today for this valuable book! You'll find it brimful of suggestions to get better crops with less work. 55 orchard, farm and garden tools described. You can't afford to miss it!

Send postal for it today!

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Write for name of our nearest agency

ORNAMENTAL WIRE FENCE

8¢ PER RUNNING FOOT

FREIGHT PREPAID

We want you to investigate this statement—we make a better ornamental wire fence than can be purchased elsewhere for double the money. We guarantee absolutely every foot of fencing we manufacture; satisfaction or money back and we pay the freight. We are manufacturers of the REGAL Extra Heavy Galvanized Ornamental Wire Fence, and we sell miles and miles of it all over Canada for enclosing lawns, parks, cemeteries, churches, cottages, farm houses, mansions, schools, etc., etc.

For the City Residence

For the Country Home

Regal

Remember, we are largest buyers on wire market; our is 20 per cent of any other one of the the Canadian buying price lower than that manufacturer. We employ no agents nor jobbers, but sell direct to the consumer for cash, saving you the dealer's commission, and heavy expenses incident to a credit business. We have just published a catalogue. It tells of the greatest fence offer ever made. You owe it to yourself to read this great REGAL offer. Use the blank form herewith and mail to us today and we will forward to you our special offer at once.

WE GUARANTEE Every foot of Regal Fence. If your purchase is not satisfactory in every way, we return its money back. We guarantee satisfaction, and will get your order to Regal to be shipped from our nearest warehouse. Regal fence is the full size fence that every strand of wire is the full size specified. Regal fence has been submitted to rigid tests, thereby proving that the galvanized coating on Regal fence will outlast any other fence on the market. This guarantee is positive and unqualified.

The Regal Fence Co., Ltd., Sarnia, Ont.

The Regal Fence Co., Ltd., Sarnia, Ont.

Gentlemen:—Send me full information and circular of your SPECIAL PRICE Fence Offer, postpaid and without expense to me. Yours truly,

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NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm

ENFIELD, MIDDLESEX, ENG.

Strawberry Plants

Sample, Dunlap, Splendid, Pocomoke

We have large quantities of Extra Strong Plants. It will pay you to write us for prices.

JAS. E. JOHNSON & BROS., - SIMCOE, ONT.

Quality Alone Insufficient

Speaking recently before the members of the Northumberland and Durham Fruit Growers' Association, Mr. P. W. Hodgetts, Director of Horticulture for Ontario, pointed out that Ontario apples need more than quality alone to enable them to hold their own in the markets of the world. In this connection he said:

"True, our apples lead all others for quality; but quality alone will not suffice. Look at the apples at present displayed in Toronto store and restaurant windows and selling at from two dollars to two and a quarter a bushel box. These apples are from the western States, and have no quality whatever, but they have good appearance and were well packed.

"There is no false prejudice in the west against the methods of packing. Some of our very best districts are offenders in this respect. We had a market commissioner in the west last summer, and he reported from day to day the condition of the fruit on arrival. Here are some extracts from letters received from him by our department:

COMMISSIONERS REPORTS

"'Western States apples coming to Winnipeg in fine shape.

"'Ontario shippers could sell here if they would use boxes.

"'Edmonton dealer says that Ontario growers must use a boxed package or lose market entirely.

"'Washington and British Columbia apples are shipped in fancy box packages, the fruit in tiers and each apple wrapped in paper. Winnipeg market demands boxed packages. The small demand for Ontario apples is due to inferior quality.

"'There are just enough bad packers in Ontario to give us a reputation as a second-rate fruit country.'"

Mr. Hodgetts cited the case of one prominent Ontario buyer who went west last summer to sell the pack of one apple association. He wrote back to Ontario saying that he had been unable to sell a single barrel of Ontario apples west of the Manitoba boundary.

RATES AND DELAYS

Mr. Hodgetts also dealt with the old problem of exorbitant haulage rates and vexatious delays. He compared the rates accorded Nova Scotia and American shippers to those given Ontario growers, and showed that discrimination was practised, and traced the progress of different cars of fruit across the continent to different Canadian western points, some cars taking as high as fifteen or more days.

"I believe that the time is not very far off when our best varieties must be boxed," said Mr. Hodgetts. "We must be prepared to forward at least mixed cars of boxed and barreled apples to those western points. In the western States they are using no barrels at all. The British Columbia growers are asking the Dominion Government to adopt for Canada the American grading of "extra fancy," "fancy" and "choice" in place of our present grading, one, two and three, and they also wish to enforce among our packers the use of the United States box package. These western buyers seem to have more faith in box than in barrel fruit. I would advise you to put at least your best fruit in boxes, and perhaps you might then put No. two stuff in barrels."

Every advertiser in this issue of THE CANADIAN HORTICULTURIST has the personal endorsement of the publishers. Our advertisers are good people to do business with.

The Eave Line is Where The Ordinary House Rots Out, Because The Condensation Gets into the Joints: The U-Bar House Has No Eave Joints. It is The Original Curved Eave House.

A curved surface is stronger than an angle unless heavily braced, therefore, the curved eave makes the most rigid house. Combine these enduring points with no gutter to cast shade and you have a house that can't be equalled for growing qualities, and surpasses all others for attractiveness.

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U-BAR GREENHOUSES

PIERSON U-BAR CO

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CANADIAN OFFICE, 10 PHILLIPS PLACE, MONTREAL

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Some ORNAMENTAL SHRUBBERY this spring. A few dollars will add immensely to the appearance of your lawn.

Canadian Grown, thoroughly acclimatized. No Agents' commissions to pay, cutting the price in half.

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Hardy Climbing	Hardy Garden	Hybrid Tea	Tea
25c and 50c each	25c each or $2.50 per doz.	25c each or $2.50 doz.	25c each or $2.50 doz.

Baby Ramblers
25c each or $2.50 per doz.

Flowering Shrubs	Herbaceous Shrubs	Perennials
25c to 50c each.	$1.50 to $3.00 per doz.	$1.50 per doz.

Illustrated Catalogue with Planting Instructions on Application

J. GAMMAGE & SONS, LIMITED

P. O. Box 553 - - - - LONDON, ONT.

What Three Bushels More to the Acre Means

EIGHT years ago the farmers in a central state raised average crops that ran three bushels less to the acre than they now get. Suppose each acre of farm land in this country were so tended that it produced an equal increase. How much more money would farmers have, with which to buy the luxuries of life that they earn and deserve?

What others have done, you can do. Your share in this prosperity depends entirely upon yourself. The first step for you to take is to fertilize your land properly with manure spread by an

I H C Manure Spreader Corn King or Cloverleaf

Manure cannot be spread as it should be unless a machine is used. An I H C spreader covers the ground with an even coat, light or heavy as may be needed, and pulverized so that the plant food elements in the manure combine with the soil to best advantage.

The spreader that does this work as it should be done must have many excellent mechanical features. The apron should move without jerking; the beater should meet the load at exactly the right point to pulverize the manure without too greatly increasing the draft of the machine; the speed changes of the apron should be positive whether the spreader is going uphill or down, otherwise the spreading will be uneven. All these features are provided for in the construction of I H C spreaders.

The I H C local agent carries in stock the machines best suited to your locality. See him for catalogues and full information, or, write the nearest branch house.

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Extra Good Stock

	POST PAID
Begonias, Single,—White, Yellow, Pink, Crimson, Scarlet	Doz. 50c
Begonias, Double,—White, Yellow, Pink, Crimson, Scarlet	Doz. 75c
Lilies, Auratum, Extra large bulbs, 15c each	Doz. $1.50
Lilies, Tigrinum, 5c each	Doz. 50c
Lilies, Speciosum Album, 5c each	Doz. 50c
Lilies, Speciosum Rubrum, 15c each	Doz. $1.50
Lilies, Speciosum Roseum, 15c each	Doz. $1.50
Gladioli, Our best mixture	per 100 $2.50
Gladioli, Canadian mixture	per 100 $2.00
Dahlias, Pot grown roots. Five new and very fine Cactus Dahlias. Maroon, White, Pink, Yellow, Crimson, Violet. Named, 15c each. Set of five for	60c
Paeonies, Large roots of best varieties, in White, Red, Pink or Rose.	Each 20c
Boston Ivy Roots, Three year strong plants.	Each 20c
Madeira Vine, 3 for 10c	Doz. 35c
Iris or Flowering Flag, Double mixed, 15c each	Doz. $1.50

Geo. Keith & Sons, Seed Merchants since 1866 **124 King St. East, Toronto**

Okanagan Valley North

Charles Webster, Armstrong, B.C.

The Northern Okanagan is understood to mean that part of the valley north of Okanagan Lake, or rather north of Vernon, which town is a couple of miles from the head of the lake. This division is the best that can be made as north of Vernon irrigation is rarely practiced, there being a satisfactory rainfall. The contour of the valley is much the same as at the southern end. In place of the lake the northern valley has rich bottom lands, which are very prolific vegetable and hay soils.

February gave us some unusually cold weather, which may result in some winter injury where tender varieties have been planted. As the trees went into winter thoroughly ripened, injury may not occur. A large fruit crop is not expected, as the whole Pacific slope had a heavy, full crop last year. About the first week in March spring work will open up. The snow goes then, or shortly after.

Armstrong, and the strong bench lands tributary to it, is a heavy shipping point. It has a branch of the Kelowna Farmers' Exchange (cooperative) and two large privately owned exchanges. The shipments of produce for the past summer and this winter will total close to one thousand cars. The Canadian Northern Railway is to build through the valley, probably this summer.

The Armstrong Fruit Growers' Association buys a variety of supplies for its members at cost and looks after fruit interests generally. It is in affilation with the B.C.F.G.A. The parent Association has for some years made a practice of supplying pure bluestone to its members. The local organization has a kick about the bluestone supplied to them last fall. Undoubted authorities pronounced it sulphate of iron. A refund is being asked for.

The fruit packing schools have been continued this winter through the province by the government. A betterment is seen in the scarcity of packers as well as in the packs made by exhibitors at the fall fairs. A knowledge of packing enables growers to place properly packed fruit in the hands of personal customers, and not too far distant storekeepers, at a reasonable price. Anything that will lessen the cost of fruit to the consumer here in the west is a consummation devoutly to be desired. The practice of feeding a bunch of avaricious middlemen is limiting consumption.

A canning factory is much needed. Beans, corn, peas, pumpkins, citrons, and so forth, can be produced in quantity, and all small fruits succeed admirably. The lack of a canning factory to use these locally or regular refrigerator car service to ship them out, make them rather unsatisfactory crops for the growers.

Grimes' Golden appears to be a most satisfactory apple for some parts of this district. True, it is not a red fruit, but its lusciousness, waxen gold color and correct dessert size, will eventually find for it everywhere the reception it deserves.

The St. Thomas Horticultural Society has adopted a somewhat unusual method of interesting the public in flowers. An exhibition was held last season in the windows of the Woolworth Company. The Company placed receptacles for the flowers at the convenience of the exhibitors. All kinds of garden flowers were eligible for entry.

LANDSCAPE DESIGNING for the HOME GROUNDS

No property is too small to be without the services of expert advice in planning for the planting of Ornamental Nursery Stock.

Our Landscape Department

is at your disposal. We make no charge for suggestions.

Send us a rough sketch of the property to be improved, and we will send you a letter of suggestions with list of stock suitable for your district and prices.

STONE & WELLINGTON, Nurserymen, TORONTO

Two Worlds to Live In

J. McP. ROSS

The one created for you and the one you create yourself—Our Landscape Department is **at your command to help you.**

We have for Spring of 1913, a full stock of all lines of nursery productions—**Fruit and Ornamental** Trees, Shrubs, Vines, Paeonies, Phlox and Hardy Perennials.

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ROSS & SON, 1167 Queen St. E., Toronto, Ont.

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CELEBRATED IRISH ROSES

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MODEL 2, B, 1913

High Class Sprayers. Also a complete line of APPLE EVAPORATING Machinery. Sanitary, Labor Saving EQUIPMENT

Write for illustrated book containing valuable formulas on Spraying—It's Free.

FRUIT MACHINERY CO. - INGERSOLL, ONT.

Flower and Vegetable Seeds

Selecting good seed has a great deal to do with the ultimate success of growing flowers or vegetables. The love of flowers should inspire those who cultivate them to select the choicest and most reliable seeds. Gardening for profit or pastime should be done with a view to getting the best results. The size, quantity and excellence of flowers and vegetables are things that are governed largely by the character, strength and pedigree of the seeds.

CARTER'S TESTED ENGLISH SEEDS

These famous seeds are known, sown and grown the world over. Wherever used they have made extraordinary records for productiveness. Your flowers and your garden vegetables for next season will be the admiration of all who see them and a source of pride and satisfaction to yourself if you sow Carter's Tested Seeds this Spring. Order from the catalogue. Write for a copy at once, so you can order early.

Send for 1913 Catalogue—FREE

Printed on fine paper, profusely illustrated with half-tones and containing four full page pictuers in natural colors. When you write, please address

Department O

PATTERSON, WYLDE & CO.

Sole Agents in Canada for James Carter & Co., of London, Eng. Seed Growers to His Majesty King George V.

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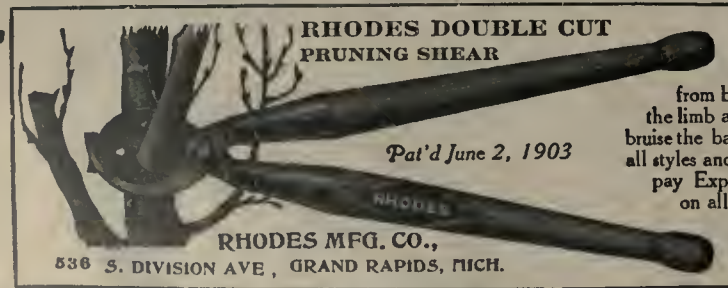

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New Brunswick

Interest in fruit growing in New Brunswick is rapidly increasing. New orchards are being planted and better care is being taken of the old orchards. The Fruit Growers' Association reports a great increase in the number of orders for trees, and that the number of spraying outfits and quantity of spraying material purchased showed an increase between 1910 and 1912 of 1,080 per cent. Last summer and fall a number of prominent English capitalists visited our fruit districts, as well as some fruit growers from British Columbia, where land values are much higher than they are here.

The Provincial Department of Agriculture realizes that the time is ripe for a development of the fruit industry, and last year continued the series of orchard surveys that was started in 1911. These surveys consist of a farm census, and are being conducted with the object of gathering information of value to the fruit growing industry, including such points as the best varieties, methods of cultiavtion, and insect and fungus pests and their control. All the farms fronting on the western bank of the St. John River, from Fredericton to Woodstock, a distance of sixty-two miles, have been surveyed.. Assistance is also being given in the planting of orchards and in the examination of bearing orchards and orchard sites.

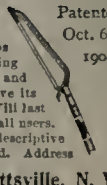
The twenty-one illustration orchards are fully equipped with spraying machines and materials and are making good progress, as are three special demonstration orchards. Recently the Department of Agriculture made an extensive display of fruit grown in the province in the City of Montreal, where it attracted much attention and proved a valuable advertisement for our fruit interests.

Railway Charges Injure Fruit Industry

Speaking recently before the Agriculture and Commerce Committee of the Dominion House of Commons, Mr. D. Johnson, president of the Ontario Fruit Growers' Association, said that the reason there are so many United States apples in Canada is because the United States shippers have a better transportation rate. United States shippers, for instance, have a rate of thirteen cents a barrel between Medicine Hat and Winnipeg. Ontario shippers on the other hand pay seventy-nine cents or sixty-six cents more. The railways always get their tolls, no matter what the market or the price.

The fruit growers in Ontario are losing the trade of Saskatchewan and Alberta through railway discrimination. Express rates are killing the trade in peaches plums, and other small fruit. During the past ten years practically nothing has been done to increase the refrigerator car service. The express rate on fruit from Sarnia to Winnipeg is two dollars ninety cents a hundred. From Forest to Winni-

PRUNING SAW Patented Oct. 6th 1908



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The Canadian Horticulturist

Vol. XXXVI APRIL, 1913 No. 4

The Culture of Old Country Gooseberries

Wm. Dick, Echo Place, Brant County

IT was in eighteen hundred and ninety-five that I first thought of growing gooseberries in Canada, but as I was told by everyone to whom I spoke concerning the matter that I would be troubled with mildew and would perhaps be unable to grow them, I started on a small scale. I sent to Scotland and obtained twelve plants. I met with such success with these that three or four years later I purchased about one hundred and ninety more plants from the same company. I received these plants late in the fall, and so was forced to wait till spring before planting them out. Nevertheless, I did not lose one. My method of keeping them over the winter was by putting them in the cellar and covering the roots with soil. Since this time I have grown my own plants for increase.

My patch is on a southerly slope; the soil being a heavy clay loam, which is naturally well drained. The last two features are essential to success. I once tried to grow some berries on light soil, but had poor results, being troubled with mildew. Good drainage is necessary for almost every crop, and gooseberries are no exception.

I plant the bushes so that the rows are five feet apart, and the bushes three feet apart in the rows. I plant the bush as follows:

A hole is dug, and a considerable amount of well rotted manure is placed at the bottom. Soil is then spread over this, upon which the roots and root fibres are carefully spread out in a natural position. Soil is now spread over the roots and another layer of the manure put on and finally the hole is filled with earth. This method has given me the best results.

After the patch has been set out, I do not think that too much cultivating can be done from spring till fall. If the bushes are arranged as described, most of the cultivating can be done with a horse, so that the work is materially lessened.

PRUNING

It is best to do all the pruning in the fall. All the old wood should be removed except when the new growth has not been sufficient to warrant this. I consider that it is best to prune so that four shoots are left, each one coming directly out from the roots, thus giving the bush type of plant. This form, I think, is better than the tree type, in which the shoots are allowed to come from a single stalk, which alone comes from the roots. In the former all the old wood can be removed while in the latter the old stalk has necessarily to be left. The advantage of this is readily seen when it is remembered that the largest and best berries grow on, and are produced by, the new wood.

Fall is the best time to carry on the work of propagation. The method which has given me the best results is as follows: The year's growth, which it is desired to use for this purpose, is laid down upon the ground, covered with manure and then with soil. This causes roots to grow where a bud would otherwise have appeared. These roots are now cut off with a fair length of the wood, and the whole is then planted. If the propagation work is carried on late in the fall no shoots appear until spring, which does not give as good results as doing the work early in the autumn.

Let me again emphasize that I believe it absolutely necessary that gooseberries should be grown on heavy, well-drained soil. Following the methods I have outlined, I have met with gratifying success and have never been troubled with mildew. The berries have been not only delicious in flavor, but have also been of such a quality as to stand shipping. This is indicated by the fact that I have

Spring's Welcome Harbingers of the Gladsome Summer. Fine Tulip Beds in the Normal School Grounds, Toronto, Ont.

Spraying with a Gould Pump in the orchard of F. W. McConnell, Colborne, Ont.

sent them as far as Boston and Montreal with complete satisfaction.

It might be of interest to mention that last season was my best. Some idea of the heavy yield I obtained may be gained when it is stated that within a distance of about eight inches on a branch, enough berries could be picked to fill one's hand. Also one berry, the largest I ever grew, was four inches in circumference. I attribute this exceptional yield to the cool weather of the spring and the abundance of rain throughout the summer.

I cannot give the names of all the varieties with which I have experimented, as these number about sixty; but I can give the names of thirteen which I can confidently say will give good results under the conditions described.

These are: Soutar Johnny, Plunder Green, Hit or Miss, Stella Yellow, Postman White, Haunham's Industry Red, Careless White, Stockwell Green, Clayton Red, Lord Dudley Red, Lancashire Lad Red, High Sheriff Yellow, Golden Purse.

It would be hard to draw any comparison between these varieties, but I believe that Postman White, Haunham's Industry Red, and High Sheriff Yellow have given me the most satisfaction. As I would like to see more engaged in this branch of horticulture, I will give any further informtaion that I can to anyone who is interested.

Further Facts on Fertilizers*

J. B. Dandeno, B.A. (Queens), A.M., Ph.D. (Harv.)

IN continuing the discussion on fertilizers, I have but one aim, namely, to give information to the tiller of the soil. Referring to Mr. Emslie's statement, "I still maintain that the theory of plant excretion, in its bearing on soil fertility, was long ago discredited," and also to Mr. Innes' statement that "the use of fertilizers is no longer baffling," let me give a few quotations. Bul. 77, "Soils," U.S. Dept. Ag., 1911, p. 3: "The action of fertilizers on soil is a much contested question, but the weight of evidence is against the assumption that their effect is due altogether to the increase of plant food." Also (referring to plant excretions), Bul. 87. 1912, p. 69: "The results of these investigations show clearly that the soil contains compounds beneficial to plant life as well as compounds injurious to proper plant development," and further, "The knowledge that harmful organic compounds exist in soils, plays so prominent a part in plant life, is of fundamental significance in soil fertility and gives a breadth of view to the subject, which, in its horizon, can not be compared with the restricted vision imposed by the purely mineral considerations." In Bul. 194, p. 108, U.S. Dept. Ag. (Lipman), is this statement: "Future research will teach how the bacterial flora is affected by crop rotation. We shall learn many an instructive lesson to turn to good account in crop production . There is for each soil a condition of highest bacterial efficiency."

Quoting from Mr. Innes: "Most certainly the value of a fertilizer which is primarily a source of plant food does not depend on its own biological characters." It certainly does depend upon its bacterial flora. What would a load of stable manure be worth if sterilized? Very little. And its value does not depend on its so-called "food." Mr. Innes does not seem to appreciate the fact that there is a number of species of bacteria (other than those on legumes) that extract nitrogen from the air, and increase the nitrate contents of the soil. The biological characters are of the utmost importance.

Also Rep. O.A.C. Exp. Union, 1911, p. 45 (Prof. Harcourt): "I would strongly advise using these (artificial fertilizers) in a small way at first so as to demonstrate whether they can be used with profit or not." In Farmer's Bul. 245, U.S. Dept. Ag, 1907, p. 16: "The fertilizer requirements of different soils and crops in different seasons are so little understood that we are not yet in a position to make positive recommendations that are of general application."

These quotations are from soil experts and show clearly that excretions of plants are highly important factors in soil fertility, and that the problem of fertilizers is by no means a settled one, as Mr. Innes seems to think.

Mr. Emslie raises the point that the Geneva test is an isolated case. In a sense it is, because there has been none to compare with it. Life is too short to obtain many such. There is none in America on orchards, aside from this, that is worth much. But I should prefer one experiment where all the conditions were guarded than one hundred of the average tests.

SOME TESTS

But let me give you a few results that are not isolated cases, taken from Bul. 67, U.S. Dept. Ag., 1910:

Oats—One thousand four hundred and eighty-three tests, for over forty years, twenty-five different States, twenty-three kinds of fertilizers, arranged singly, in combination of two and of three or more. Cost of fertilizer taken into account but not cost of applying; average loss per acre when fertilizers applied singly, two dollars forty-six cents; when in combination of two, loss one dollar sixty-five cents per acre; in combination of three or more, loss is six dollars fifty-four cents; organic fertilizer (tankage, etc.), loss five dollars fourteen cents per acre. Price of oats estimate at forty-seven cents per bushel.

Hay—One thousand two hundred and sixty-three tests, arranged as for oats, and at nine dollars a ton; fertilizers, singly, loss per acre, one dollar ninety cents; in twos, loss one dollar forty cents; in threes, loss twenty dollars seventy-two cents; organic fertilizer (tankage, etc.), loss five dollars fifteen cents.

Alfalfa—Forty-two tests, price ten dollars a ton; average loss per acre for three or more, sixteen dollars forty-eight cents.

Rye—Fifty-four tests; one fertilizer,

(*Concluded on page* 92)

*This artiele was written for publication in the March issue, and, therefore, is not intended as a reply to the article on fertilizers that appeared in that issue.—Editor.

The Renovation of Old Neglected Orchards

R. S. Duncan, B.S.A., Port Hope, Ont., District Representative for Northumberland and Durham Counties

Spy Tree in Mr. Nicholls' Orchard Before Dehorning

IN the spring of 1911, four orchards in the counties of Northumberland and Durham, which had been very badly neglected, were taken in hand for a period of three years to be treated according to the best orchard practices. The idea was to see whether the "old orchard" on the farm could be made to pay; if not, what would be the use of fruit men talking of rejuvenating the neglected orchards? The orchards were situated near the main road, where they could be under observation thoughout the season, so that the results of the demonstration could be noted.

The orchards selected and which now have been managed for two years, were those of F. W. McConnell, Colborne, with one hundred and seventeen trees on a sandy loam soil; W. G. Noble's, Port Hope, one hundred and thirty-five trees on a clay loam soil; and Nathaniel Nickoll's, Welcome, seventy-two trees on clay loam soil. In West Durham we were forced to abandon the orchard of James Stanley, Bowmanville, owing to the C.P.R. running their line diagonally through the orchard. The orchard of W. H. Gibson, Newcastle, comprising one hundred and forty trees, was selected in the spring of 1912.

These orchards were planted some thirty or forty years ago, and had been utterly neglected as to pruning, cultivation, fertilization, and spraying—in fact, they had never been sprayed, and hence the quality of the fruit was very inferior, the percentage of number one's varying from thirty to sixty per cent. Some of the orchards were "lousy" with oyster shell, bark louse, and the limbs were fast dying back owing to neglect.

Two or these orchards had been in sod and had never been ploughed for years. Manure was applied as a light dressing every few years, depending upon the supply.

The orchards were properly pruned, not very severely the first year, the operation being more a thinning out of the dead wood and a thinning out of the top. Cuts of one and one-half inches

The Same Tree After Dehorning

diameter and over were painted wth white lead and raw linseed oil to assist in the healing of the wound and prevent the entrance of fungus spores which might cause decay and disease. The rough, loose, shelly bark was scraped off the trees to facilitate spraying operations.

The orchards were measured at the rate of ten to twelve loads of farmyard manure per acre, in one instance the manure being supplemented with commercial fertilizer.

In Mr. F. W. McConnell's orchard, Colborne, we suggested that two hundred pounds muriate of potash and four hundred pounds acid phosphate be applied per acre. The fertilizer responded on this light soil, and together with the nitrogen in the manure we got a good wood growth, which was quite lacking.

All the orchards were ploughed early in the spring, and received thorough cultivation up to the end of June, when a cover crop of red clover, at the rate of twenty pounds per acre, was sown in Mr. McConnell's orchard; red clover in half of Mr. Noble's orchard at twenty pounds per acre, and hairy vetch in the other half at the rate of thirty pounds per acre; and a mixture of red clover, alsike, timothy, and oats in Mr. Nickoll's orchard. All the cover crops made a fairly good growth—the red clover probably giving the best results.

The orchards were sprayed very thoroughly three times as follows: First, before or as the leaf buds burst, with commercial lime-sulphur, one to ten, to control oyster shell, bark louse, and leaf blister mite. Second, just before the blossoms opened or as pink was beginning to show in the leaves, with commercial lime-sulphur, one to thirty-five, with two pounds arsenate of lead added as a poison for forty gallons of the mixture. This is to control apple scab, caterpillars, case bearers, cankerworms, bud moths, etc. Third, immediately after the blossoms fell with commercial lime-sulphur, one to forty, with two pounds arsenate of lead added per forty

A Spy Tree Three Months After Severe Dehorning

gallons mixture to control codling moth, apple scab, curculio, etc. Our methods of spraying were described in the last issue of The Canadian Hroticulturist.)

The results obtained in 1911 were in striking contrast to the small and indifferent crops yielded in unsprayed and uncared for orchards of the same locality. The quality of the fruit was exceptionally high—the percentage of number one's being raised from thirty to sixty per cent. in 1908, 1909, and 1910, prior to our having charge, to eighty-two to eighty-seven decimal six per cent. in 1911. Further, ninety-eight per cent. of all the apples packed in these orchards was absolutely free from any insect pest or fungus disease.

Mr. McConnell's orchard at Colborne gave a net profit per acre of two hundred and twelve dollars and eighteen cents; Mr. Noble's at Port Hope, fifty-seven dollars and eighty-three cents; and Mr. Nicholl's at Welcome, one hundred and ninety-five dollars and twelve cents; while Mr. Stanley's at Bowmanville shows a net loss of twelve dollars and sixteen cents. The latter can be accounted for by the fact that the orchard was situated on a clay knoll with a gravelly subsoil. The year 1911 being exceptionally dry, the fruit suffered very severely from lack of moisture and cultivation, which was not very thoroughly done. Further, it was an off-year for this orchard, particularly the Baldwins and King's, which constituted two-fifths of the trees.

The orchards were again pruned—more severely this time—in 1912. Some very tall trees were cut back, or "dehorned," to use a popular expression, some five to twelve feet. The cuts were painted as before with white lead and raw linseed oil.

The orchards received a coating of ten tons of barnyard manure per acre, and the orchard at Colborne was again treated to the same application of potash and phosphate. The green crop was ploughed down early in the spring and the orchards kept well cultivated up to the middle of June, when another cover crop of clover, hairy vetch, and buckwheat was sown at practically the same rate per acre as in the year previous. The orchards were sprayed three times very systematically and thoroughly—using the same materials as the year before, and spraying at the same time.

Despite the poor year, as far as price is concerned, the returns per acre might be considered good. Mr. McConnell's orchard gave a net profit of one hundred and eight dollars sixty-three cents per acre, less than half of the net returns of 1911, yet the number of barrels was increased slightly. Mr. Noble's orchard gave forty-eight dollars fifty-six cents net profit per acre, and the number of barrels was increased from one hundred and thity-one in 1911 to one hundred and sixty-seven in 1912. Mr. Nicholl's orchard gave ninety-four dollars eleven cents, less than one-half of the net profit made in 1911. Mr. Gibson's orchard resulted in a net loss this year, the explanation of which is given below. These orchards were steadily going backward prior to our having charge. Owing to the aphis attacking the fruit during the past season, the percentage of number one's was not quite so high, varying from seventy-five per cent. to eighty-six decimal eight per cent. Calculating from our figures, we find that it will cost the grower on the average about sixty dollars to care for his orchard per acre per year. This includes pruning, spraying, manuring, cultivation, and cover crop, but of course does not include rent nor interest on investment. According to our figures, the average net return per acre for the three paying orchards, under two years' treatment, was one hundred and nineteen dollars ninety cents.

"The old neglected orchard pays."

Further Facts on Fertilizers

(*Continued from page* 90)

loss per acre, one dollar fifty-one cents; in twos, loss one dollar eighty-five cents; in three or more, loss five dollars twenty-one cents.

In the bulletin mentioned are many other crops, some showing loss, some a gain; some showing increase, but not enough to prove of profit, and some profitable. What the farmer or fruit grower wants to know is, Does it pay? From the above facts and the quotations given, it can easily be seen that my contention at first is well sustained, that the problem is still baffling.

Mr. Innes' article is too "wordy" to do much harm. He takes one hundred and seventy-six lines of space and two diagrams to say that slaughterhouse products are less soluble than the mixture of pure chemicals, as if that had anything to do with the question. His article looks as though paid for by the word by some packing house. I don't say it is, but it looks like it. His definition of plant food is laughable, he says, "Plant food may be defined as manure," that definition should be tacked up in the barn as the limit for puerility. But what is manure?

If fertilizers are so uncertain, then what is the farmer to do to keep up the productivity of the soil? By cultivation *and cultivation*, by draining, by green crops, by using stable manure, spread very thinly, a given amount of such manure is worth double as much when spread evenly and thinly. And lastly, by using clean chemical fertilizers experimentally at first and afterwards more extensively when the farmer knows the individual requirements of his fields and how the crops respond. Even then he ought to figure out whether it will pay. Fertilizers have proved beneficial here and there and occasionally profitable.

The slaughterhouse fertilizer I would not use at all, and for three reasons—first, they are vile smelling and nasty; second, they contain much that is of no value at all; third, the chemicals they do contain that are supposed to influence plant growth can be more cheaply bought and handled when obtained pure. As they are ready mixed, the farmer is deprived of testing experimentally the ingredients separately.

Let me give two instances of the use of such material in this locality last season. One man bought sixty-two dollars fifty cents' worth, and said he could not see as it had done any good at all. Another bought fifty dollars' worth and applied it in strips as a test, and as a result said he might as well have thrown his money into the lake. The names of these men could be given if necessary.

Mr. Emslie states that my reference to oxygen acting as a catalyser is ambiguous. Not at all, if one knows the meaning of catalysis, and I explained it by reference to other substances. His reference to the formaldehyde theory is out of place, because it does not belong to the fertilizer problem at all, and it is particularly out of place because it never was much of a theory, and was abandoned about fifteen or twenty years ago by plant physiologists (see Pierce's Plant Physiology, p. 61). If a man drags in irrelevant matter he should see that it is sound.

The action of chemical fertilizers is found now to be largely one of catalysis, and not "plant food." Such material may increase productivity without entering the plant. Such substances as carbon black, ferric hydrate, toluene, and even such inert substances as sand, have actually promoted growth without, of course, entering the plant. This gives a new meaning to the use of fertilizers. Mr. Innes's article might easily have been written twenty years ago for all it shows of modern research on soils.

As to Mr. Emslie's denial of giving a definition of "plant food," let the reader see this journal, December, column two, line thirty-seven; and to his denial of using the word "hash," see line thirty-six. I call his bluff.

In conclusion, let me say that I should be foremost to recommend fertilizers if I could do so with certainty of profit. If the farmer finds a fertilizer of any kind that proves profitable, by all means let him use it.

In my quotations, I refrained from giving results of my own researches and also from giving results in Germany or France. Those that I gave can all easily be verified.

A Productive Orchard Near Grimsby, Niagara District, Ont.

Methods of Successful Pear Growers*

Allan G. Bland, Ontario Dept. of Agriculture

LAST summer I visited a number of the larger pear growers in New York state in order to learn something about their orchards, methods, and how they were dealing with pear blight. While there are many neglected orchards in the state which are positive eyesores and of no commercial value I also visited orchards where almost the last word had been spoken on the subject of good care. I should like to outline the way in which pears are grown on a couple of these farms.

Mr. L. I. Morrell, of Kinderhook, has some one hundred and seventy-five acres in fruit and has made a special study of pear growing, especially of Keiffers. The varieties he grows are Bartlett, Seeke, Clapps, and Keiffer. The soil is a sandy loam and was in very poor condition when he bought it. Since then he has built up the land until at present it is in excellent condition. In one block he has two hundred and twenty-eight Keiffer trees nineteen years old, which are in great shape. In the early spring he sends a man through these Keiffers to prune back all the branches to old wood; that is to say, he removes all last year's growth. This causes the trees to make a very vigorous growth each year, although they are not allowed to get any larger. Fruit spurs are developed all along the main branches of the trees and a heavy set of fruit is the result.

Every year he applies a mulch of tobacco stems around his trees at the rate of twenty-five pounds to the tree, which costs him twelve dollars a ton by the car. Besides this he plows in a cover crop every year which consists of a mixture of rape, clover, and vetch. Added to the tobacco stems, and cover crop, he applies a commercial fertilizer of 4% N. and 18-20% phosphoric acid. Mr. Morrell is absolutely convinced that commercial fertilizers are necessary in order to get the best results. He cultivates about every ten days from the early spring to the middle of June. Last year he sold all his pears at an average of four dollars twenty-five cents a barrel, including Keiffers.

The trees are planted twenty feet apart, and he estimates that for the past five years his Keiffers have averaged between three and five barrels. Mr. Morrell has blight in his orchard, but is doing all he can to control it, and feels confident that he will succeed. The application of fertilizers and his system of pruning are the most noticeable features of Mr. Morrell's method of handling his orchard. The amounts used seem heavy, but for twenty years he has been experimenting and now feels convinced that he cannot do with less.

Mr. B. J. Case grows Seckel, Bartlett, Keiffer, and Duchess, and has had very good success. Although he does not believe in as severe pruning as some growers recommend, he has his orchard gone over every year and a certain amount of pruning done. He cultivates and uses cover crops of clover, and has done so for years. It may be of interest to give his returns for the past few years. Mr. Case has kept strict account of all expenses on his farm and can tell his exact profit on every crop each year. In 1906 he netted one hundred and forty dollars an acre from Bartletts. In 1907, one hundred and forty-one dollars; 1908, seventy-three dollars; 1909, one hundred and six dollars; 1910, forty-four dollars; 1911, sixty-seven dollars; making an average net profit of ninety-five dollars an acre a year from this block of Bartletts.

Taking these two places as illustrations of many others we must admit that they seem to show that good culture is necessary in order to make pears pay. If heavy crops are to be expected, the trees must have plenty of available food and must be in a vigorous condition.

Investigation Work on Peaches*

Prof. L. Caesar, Provincial Entomologist, Guelph, Ont.

In order to eliminate the danger of the trees that are being experimented on to find the cause of peach yellows and little peach contracting disease from other trees of the district, I am arranging to carry on a series of experiments in a section of Norfolk county several miles from where any peach trees are growing.

Moreover, as the degree to which the nurseries spread the disease is very important, I am planning next year (1913) with the cooperation of Mr. Biggar and the other inspectors, to accumulate data on this point.

Whatever time I had left after performing the experiments this year, was largely devoted to studying more closely the various symptoms of the diseases, helping the inspectors to recognize them and holding demonstration meetings in various sections. These meetings were well attended.

On my invitation, Dr. Duggar, who, as I have mentioned, is investigating the cause of Yellows and Little Peach, visited the district and spent nearly three days with Mr. Biggar and myself studying the various symptoms of Yellows and Little Peach, and other matters of interest in different parts of the Niagara Dictrict. I have heard from Dr. Duggar since his return home, and he says he feels more confident than before of ultimately getting to the root of the trouble. During his visit, he suggested a few ways of investigation that I hope to take up next year. Mr. McCubbin, of the Botanical Department, of Ottawa, has started to study these diseases. I look for much help next year from his cooperation.

Investigations, however, will not cure

*Extract from an address delivered before the last annual convention of the Ontario Fruit Growers' Association.

A Combination Raspberry-Strawberry
See descriptive article on this page.

these diseases, and I cannot urge too strongly upon peach growers the necessity of destroying promptly every diseased tree in their orchards whether marked by an inspector or not. I regret to say that while this is being done conscientiously in some districts, in others the growers, even some of the leading men, are very careless and indifferent and doing little or nothing towards encouraging thorough work in their districts.

A Raspberry-Strawberry

Eight years ago Mr. J. E. Hopkins, of 35 Kippendavie Avenue, Toronto, started an attempt to produce a fruit that would combine the desirable qualities of the raspberry and strawberry. For two years he worked, and there was very little to show for it, but at the end of four years there was a little bloom, and the plant began to assume the shape of a bush. At six years the bloom again appeared, and a small, half-matured fruit appeared, but never developed or ripened.

Last year, about August the first, the fruit began to appear plentifully and hung in great clusters on the bushes, and later matured and ripened.

The bushes are about eighteen inches in height. The branches have thorns similar to the common garden raspberry, but the bushes are unlike the raspberry, as they have branches more like a tree. The leaf resembles the strawberry leaf, except for a deeper marking where the veins are and probably a little greater length than the strawberry leaf.

At first sight the fruit looks like overgrown raspberries, but it has not the number of seeds that there is in the raspberry. The outside of the berry is smoother than the raspberry, and the color is more of a brilliant red. The flavor is a mixture of both the raspberry and the strawberry, and the shape of the fruit is something like that of the raspberry. Mr. Hopkins has several hundred plants, and already has been offered a considerable sum for them.

Two years ago when I had an order for five barrels of No. 1 apples I could not fill it out of thirty-five acres of orchard, and had to go out and buy them. Last year I sprayed three times, once with lime-sulphur and twice with Bordeaux, using three pounds of arsenate of lead to fifty gallons, and obtained ninety per cent. number ones. —L. Wolverton, Grimsby.

Window Boxes

H. Gibson, Fergus, Ont.

For many city dwellers the window box is the only substitute for a flower garden. Many out-of-town residents also are glad to bring the beauty and fragrance of the garden a little closer to their daily round of duties. Many a time a tired woman who could not find time or is too weary to visit the garden, is refreshed and cheered by lingering for a moment over a flower in the window. Even the poorest in our cities can bring a little of beauty and brightness into their lives by having a few flowers in a window box which can be constructed so cheaply that all can afford it. Therefore the growing of flowers in boxes should be encouraged everywhere and especially among the poorer classes, to whom the possibility of a real garden is a thing not to be dreamed of.

MAKING A WINDOW BOX

The lumber of a window box should be cut the length of the window sill, about a foot wide and from ten to twelve inches deep. The price of lumber should be no barrier to anyone wishing to have a window box. The local grocery store might furnish a box free that with very little trouble could be converted into an ideal article for this purpose. When finished it should be so secured that it cannot fall or be blown down by the wind.

Before commencing to plant anything in the box a number of small holes should be bored in the bottom to drain off surplus water. Over the holes place pieces of crock, (i.e., broken pots) to prevent the soil from clogging. Use good sweet loam to which has been added a liberal sprinkling of bone meal Place the rougher parts of the compost over the crock, cover the earth with a thin layer of moss or hay, and then fill up to within an inch of the top with the finer soil. The moss serves the double purpose of retaining moisture, and preventing the finer particles of soil from working their way down to the bottom of the box, and there clogging the drainage.

Among plants best adapted for cultivation in window boxes are geraniums, in variety, fuchsias in variety, begonias, petunias, heliotropes, lobelias, nasturtiums, plumbagoes and pansies, for flowers; German ivy, hysimachia and moneywort for trailers.

For foliage plants, the following will meet most requirements: Dracaenas, coleus, Solleroi geranium, ferns in variety, aspidistra and achyranthes.

The begonias and pansies will thrive where there is a great deal of shade. The petunias and nasturtiums, too, will furnish both flowers and foliage, and the latter is not at all particular whether it is trained up the sides of the window or allowed to droop over the side of the box.

Flower Gardens of Walkerville*

W. H. Smith, Secretary Walkerville Horticultural Society

THE beauty of a town or city is determined not so much by the gardens of the rich who employ professional gardeners as it is by the gardens of the working people, the men and women who cultivate and watch with loving care the plants they themselves have planted and who thereby gain pleasure and recreation. If this article, therefore, encourages others to make their surroundings more pleasant, it will have achieved the obejct for which it was written.

The Front Garden of Mr. Humble's Residence. No. 1

The selection of gardens to be photographed for this article was a hard task. There are so many flower gardens in this town it was hard to pick out the ones considered the best.

Gardening in Walkerville is encouraged by Messrs. Hiram Walker & Sons, Limited, who issue their own prize list. They offer prizes for owners, and prizes for tenants, and contribute about four hundred dollars in prizes for general appearance, shrubs, blooming plants, roses, climbing vines, and other similar classes. The Walkerville Horticultural Society is also doing its share by giving a liberal premium list and encouraging citizens to keep their boulevards graded and mown.

A RIOT OF BLOOM

Illustrations one and two show the front and back gardens of Mr. Humble, Lincoln Road. There is a riot of color in the border of geraniums, begonias, coleus, salvia, and lilies. The window boxes, vieing with the border, contain vincas, Black-eyed Susans, dusty millers, coleus, fuchsia, geraniums, and small caladium, the whole making one solid bank to the windows.

The back yard is one mass of bloom, there being annuals and bulbs, borders of sweet alyssum, zinnias, nicotina, asters, dahlias, sweet peas, phlox drummondi, gladiolus, and morning glories trailing from the shed. Can you picture to yourself the wondrous beauty of the many blossoms? This garden should be of interest to many, because the gentleman who cultivates it was a novice at gardening two years ago, and it shows what can be accomplished when once you are interested.

A RIVAL GARDEN

Figure three shows the garden of Mr. Montrose, a next door neighbor of Mr. Humble. There is a friendly rivalry between them; of hanging baskets, tubs of boxwood, tripods with their baskets, clematis (Jackmanii), and border of coleus, geraniums, salvia, petunia, balsams, and begonias, all edged with lobelia.

THE AUTHOR'S GARDEN

The residence of the secretary of the Walkerville Horticultural Society is shown in illustration number four. The border around the verandah contains mixed annuals, bulbs and plants—a medley of plants, balsams, geraniums (the Nutt and Mme. Barney in the majority), petunia in striped effect, canans (the King Humbolt), and a liberal scattering of gladioli, some caladium nodding their large ears on the corners, while celosia, the Castle Gould, lend gracefulness with their plumes of orange, pink, and red—the whole thing being edged with ageratum, cobaea scandens climbing around the pillars and openings of the verandah, while swinging from the openings are hanging baskets containing the usual trailers, vinca, thunbergia, lobelia, geraniums, petunias, fuchsias, and others.

The back garden, of which a glimpse is shown, is bordered with English privet three feet high and two and a half feet in width, trimmed flat, the top being level from one end to the other.

The Garden in the Rear of Mr. Humble's Residence. No. 2

*Just when going to press it was found necessary, owing to lack of space, to leave out the descriptions and illustrations of a couple of gardens. These will be published later.—Editor.

The Garden of Mr. Montrose, a Next Door Neighbor of Mr. Humble. No. 3

In the centre of the garden is a large bed of cannas edged with caladiums (elephant ears); further back is a perennial garden containing hollyhocks, hibiscus, crimson eye, tritoma pfitzerii, larkspur, and columbine, peonies, perennial phlox, foxglove, sweet william, and dianthus. Mixed through these, gladiolus are planted, also nicotiana, petunias, and phlox drummondi.

THE ROSE GARDEN

Facing the south are hybrid tea roses, which bloom all summer. The varieties of roses which do the best with me are Gruss an Teplitz, Madam Caroline Testout, Dean Hole, Killarney, Jules Grolez, Kaiserin Augusta Victoria, Madam Ravery Etolie de France, and Richmond. Facing the east are the hybrid perpetual roses, Frau Karl Druschki, Paul Neyron, Alfred Colomb, General Jacqueminot, Magna Charta, Marshall P. Wilder, Margaret Dickson, Prince Camille de Rohan, Ulrich Brunner, and J. B. Clark; the later rose in the hybrid perpetual class because that is where it belongs, although some class it with the hybrid teas. There is nothing to warrant it being placed there except its foliage and fragrance; the flowers are of enormous size, the buds pointed and perfectly formed. This rose should be grown by all rose lovers.

Did space permit, I might give detailed descriptions of Walkerville's many other lovely gardens. Nothing less than a visit, however, can reveal half their beauty. Such a visit the readers of The Canadian Horticulturist are invited to make in order that they may learn why it is that Walkerville has become noted for its attractive homes and alluring streets.

Cold Frames

R. S. Rose, Peterboro, Ont.

Having got your seeds in order, look up your hot or cold frame. Now is the time for getting them in readiness.

For those who have not used either frames, a few words of how to make one may be of use.

A cold frame is used to keep off cold winds, to keep the ground clear of snow, and also to increase the feeble heat of the sun in the early spring days.

The construction of the frame is simple. Anyone can knock one together. Make the back board, say, twelve inches high, and the front board eight inches, so as to give the frame a slant. The standard size is three feet by six feet. Of course you can make the frame any size to suit yourself. Set it up in a sheltered, well drained position, as near the house as possible.

NO HEAT USED

A cold frame is a frame with a sash, but no other means of beating. Fill the frame with soil to within six inches depth in front and nine inches at back. Make shallow drills, three or four inches apart across the face of the soil; sow your seeds; cover thinly; then press down gently, but firmly, or rather evenly. Water moderately with a fine watering can. Put in the sash or glass window. Keep everything snug and warm until seedlings appear. The glass may then be tilted up at one end so as to allow fresh air inside the frame, that the young plants may become sturdy. As the plants get stronger, the glass can be removed during the day time, if the weather is warm, but always cover up during the night. If the weather gets frosty cover the glass with an old blanket or straw litter, in fact anything that will protect the delicate seedlings.

USE FLATS

I prefer to sow my seeds in flats or small shallow boxes, with holes in the bottom for drainage. I find that the boxes give me more satisfaction, for this reason, some seed germinate faster than others. Those that come along the fastest can be removed to more light and allowed more fresh air, and the ones that take a longer time can be kept by themselves.

Residence of Mr. W. H. Smith, Secretary of the Walkerville Horticultural Society. No. 4

The Rose and How to Grow It*

James M. Hull, Hamilton, Ont.

THE amateur is sure to encounter difficulties in growing roses. If, however, their culture is once commenced, it will be found hard to give it up, as their attractions become more and more fascinating as the years go by.

Start in the right way by selecting an open situation, with shelter, not too near

The Rose—J. B. Clark

trees. Otherwise the roots of the trees will rob the roses of their required food.

The ground should be well drained. I dig about two feet deep, and put in a layer of cinders, stone or any other material, for drainage, and on top of this manure, well packed down, and then the soil. Keep the fine soil, mixed with some well decayed manure, for the top. Raise the bed above the surrounding soil.

Roses that are budded will grow stronger and give better bloom than roses on their own roots. Nevertheless I prefer roses on their own roots.

There is no danger of suckers growing from below where budded.

When planting budded roses, the bud should be three or four inches below the surface. This will tend to prevent the suckers springing from the roots, or from the bud.

THE SOIL REQUIRED

The soil for the rose bed, especially for hybrid perpetuals, should contain some clay, as it retains the moisture longer than where all sand is used. Tea roses require warmer and lighter soil, such as sand and leaf mould. The loose soil from sod is good.

Plants from the nursery if not grown in pots, should be set in warm water for a day, in case the roots are too dry. Many roses are lost through the roots having become dried out before planting.

Puddle the roots in thin mud, and set them firmly when planting. Rake the top soil loose. It should be kept loose all summer, especially after rain. If a crust forms on the soil, it prevents the air getting at the roots, which the health of the plant makes necessary.

Do not cultivate too deep. When the bed is well made the roots are near the surface. All the cultivation it will need for a few years is a top dressing. Bone meal or very fine sifted wood ashes, or coal cinders are good, when fine. They keep the top soil open and loose. I use bone meal and also manure from the hen house. It is spread a few inches from the plants. If placed too near it is apt to burn the plants. The manure contains an amount of ammonia which helps to kill the insects that the rose is subject to.

INSECT PESTS

A fine spray from the hose early in the season is good to keep the plants free from insect pests. Tobacco solution controls the aphis or green fly. Apply it with a whisk, and in such a manner that it will reach the underside of the foliage, as well as the top. There are many other solutions that are good. I have found the foregoing sufficient.

The perpetual roses should be pruned well back, but with tea roses only the weak wood requires to be taken out after growth in the spring. My favorite roses are hybrid teas, a cross between tea and perpetual roses. They have all the good qualities of both parents, and continue in bloom all summer. I have cut bloom as late as November.

The winter protection I give tea roses is to drive small stakes around the plants. These are filled in loosely with leaves. Around this is placed a coarse litter from the garden, which helps to keep the leaves from blowing away.

There are so many good roses it is impossible to name them all. I will there-

Madame Caroline Gestout

fore mention only a few of the best and easiest to grow:

Perpetual: Karl Druschki, white; Mrs. John Laing, pink; Paul Neyron, deep rose; Baroness de Rothchild, pale pink; J. B. Clark, deep scarlet; Madam Plantier, white.

Tea: La France, bright pink; Killarney, white, pink; Madam Caroline Gestout, pink; Betty, ruddy gold; Kaiserin Augusta Victoria, pink.

White Killarney Roses

*First prize essay in the competition for prizes offered by Messrs. Hermann Simmers, of Toronto, and R. B. Whyte, of Ottawa.

The Rose—Betty

Climbers: Dorothy Perkins, pink; Crimson Rambler, crimson; Baltimore Bell, pale pink; Perfection, pale pink; Prairie Queen, rose; and many other beautiful new varieties which prolong the season.

The climbing roses are used for covering the fences. They are a splendid background for perennials, which I use in between the rose plants, as they come in bloom after the June roses are through blooming. When garden space is limited, as mine is, bloom may be continued all season with the help of perennials.

The Modern Peony*

J. H. Bennett, Barrie, Ont.

When spring arrives remove the coarse mulch and stir the finer parts well into the soil, taking care not to disturb the pinkish white buds then just beginning to show. Peonies, as stated before, are quite hardy without mulch, and while this attention is not essential, it will be more than repaid.

The best time for planting is in the fall when the roots have well ripened, usually early in September, though they may be planted as late as the ground may be cultivated. They may also be planted in the spring, but this practice is not recommended, as the growth the first season is not so vigorous and they seldom bloom as strong. This is also partially true of very late fall planting. All peonies give better blooms after becoming established, and should not be finally judged the first season.

The peony is propagated—at least for the purposes of the average gardener—from the root. To get at the roots do not spade. The better plan is to dig down beside the plant until the root is exposed, attack the plant from above with a and then cut off with a sharp knife the desired buds attached to part of the root. If you wish to take out the whole plant or root the best plan is to dig all around it, and when loosened up so as to be easily removed whole, do so; when it can then be divided into sections with one or more buds desired. From three to five buds make good plants But once more the warning must be given to take care that the buds are not injured in dividing.

Propagation from seed is a slow matter, for it takes four or five years for a peony to grow from the seed to the blooming period, and even then it will hardly repay the trouble, for the chances are all against producing anything worth while.

If, however, one deems the delight of giving to the world a really desirable new variety is worth the risk, then gather the seeds as soon as they are ripe, and store them in sand over winter. Plant early in the spring in well prepared soil, and exercise patience.

*Extract from a paper read at the last annual convention in Toronto of the Ontario Horticultural Association.

Planning the Garden

At this season of the year many amateur flower growers are at a loss to know how to lay out their gardens to the best advantage. On this page appears a diagram of the garden of Mr. K. W. McKay, of St. Thomas, a description of which was published in The Canadian Horticulturist last fall.

The outside measurement of the garden is one hundred by sixty-six feet. The paths are two feet six inches wide, with a curb of two by four inches cypress stained green. The long beds on either side are ten feet wide and may be cultivated by rake or Dutch hoe from the paths.

The general arrangement of the paths and beds has given Mr. McKay good satisfaction. With the exception of a few perennials, the space devoted to flowers and vegetables will go on an adjoining lot to make room for roses and additional flowers. The compost box, twelve feet by four feet by four feet, takes care of house garbage, weeds, grass clippings, and leaves. These decompose quickly, and form a mulch most suitable for flowers.

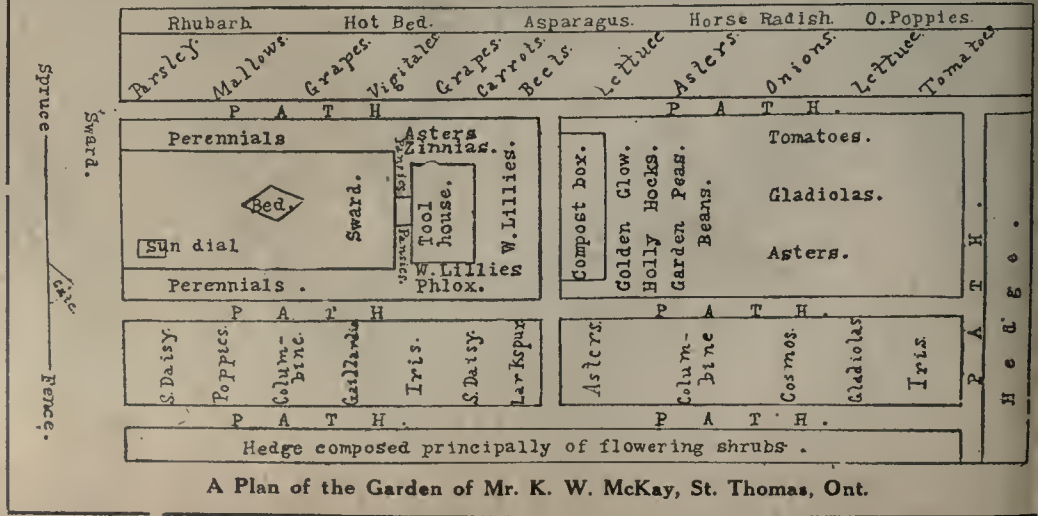
Making the Compost Pit

J. MacPherson Ross, Toronto, Ont.

The compost pit may be of any dimensions that will answer to hold such refuse as would accumulate about any ordinary household. It is not necessary to have it boarded, although it would be better in order to hold the earth sides more securely.

A space eight feet long by six feet wide and four feet deep would be a convenient size. A pit as shallow as two feet would answer if placed in a corner of the garden not very much exposed to view so long as it would be convenient to throw kitchen slops or soapsuds into. Nothing could be more fertilizing than dishwater or soapsuds, as they contain potash and all other fertilizing ingredients. You can readily see how convenient it would be to throw weeds into such a pit through the summer when cultivating your garden, grass clippings from the lawn, leaves, litter, and even cornstalks, decayed fruit, straw, and in fact, anything except wood. Wood readily ferments and decays. Sifted coal ashes would be all right, as they would absorb liquids of any kind rich in nitrates and other fertilizing chemicals. Coal ashes, though not in themselves of particular value, yet serve as a medium to lighten stiff soil and are a good retainer for fugitive fertilizers. The leaves of the lawn make desirable and valuable leaf mould.

The longer you can leave such refuse to decay the better. If it should become in any way offensive, a covering of earth spread over it would prevent any nuisance. Such a pit would serve also as a place, when emptied of its contents in the spring, to place manure in to make a hotbed.



A Plan of the Garden of Mr. K. W. McKay, St. Thomas, Ont.

Tomatoes in a City Garden

Frederick Davy, Ottawa, Ont.

IF a census were taken of the vacant and uncultivated yet cultivable land in towns and cities and the possible produce computed from the market gardening standpoint, it might easily be proved that a careful use of such land for gardens would decrease largely the cost of living of the town and city dweller. Many people do not plant a garden because they think that they have not enough land. Yet something useful can be grown on every foot of land where the sunlight falls. In the case of a small, well-exposed, well-drained piece of land, no crop will yield better returns in produce and satisfaction than tomatoes.

Henderson's Ponderosa

The big tomato in the foreground weighed a pound and a quarter, and was of excellent quality.

There is no garden crop that gives more pleasure to housewives—or, indeed, more satisfaction to those who appear three times per day about the family mahogany—than tomatoes. Tomatoes at table are always in order. Ripe, with salt, pepper, or sugar, according to taste, cooked as vegetables, or in pickles or sauce, they never fail to command the appetites of the hungry.

The householder who desires a crop of tomatoes for personal use generally looks for a better offering from the ready soil than such fruit as is grown in the field. If a man, he knows the pleased look that lightens the face of his wife as he hands her a basket of plump, round, smooth, even-sized, prettily-ripened pink or red tomatoes. And her words of pleasure at the gift are as great a delight to his heart as was the sight to Abel of the smoke of his sacrifice ascending straight to heaven. Only care and gardening skill can produce such fruit. But it is skill such as every son of Adam may possess if he wishes.

BEST VARIETIES

The facts given in this short article are from the experience of the writer, who cultivated a plot of less than one-thirtieth of an acre in the city of Ottawa. The photos are from plants in the plot. The first thing to decide when following suit in any locality is the variety or varieties that will be used. After a good deal of experience which was checked by consultation with the best authorities of the Dominion, the conclusion arrived at was that for a city garden it would be hard to beat a combination of Sparks' Earliana, Chalk's Early Jewel, and Henderson's Ponderosa. These ripen in the order named.

The first are good on account of their earliness, but for table use they do not show the quality of the later and latest of the three. In all average seasons, these three varieties if properly cared for can be made to give ripe fruit for the table from the latter part of July until very late in the autumn or even till Christmas if the late green fruit is gathered with the first frost and wrapped in paper and stored on shelves in the cellar. When so handled the fruit goes through a slow ripening process, and can be used as it becomes ready.

The plants can be started in the house

Chalps Early Jewel Tomatoes

These plants reached a height of eight feet six inches and bore fruit all the way up. Mr. Davey is shown in the illustration.

Henderson's Ponderosa Tomatoes

Two stems were allowed to grow. The illustration shows the manner of staking and tying.

if one has a sunny window and an even temperature indoors. Little boxes should be prepared with nice, loose, loamy soil, and the seeds planted in twos or threes about three inches apart. When they come up, the plants which show the strongest growth should be selected to live and the rest nipped off. The seeds should be in the boxes from the first to the middle of March, as under such conditions the growth is slow. During growth the soil should be kept from coal gas or bad air. Of course, if you wish you may buy the plants from the professional gardener. But it is best to make sure that he is a reliable man, reliable not only in honesty, but also in ability, as otherwise you may get plants that are not just the varieties you want.

If one wishes early fruit, the plants should be in the ground early. It is best to start in the boxes more than one is likely to need. A few should be set out as soon as the ground is ready, regardless of the danger of frost. Then if there is none you will be the gainer. If a frost is anticipated, the plants can be protected by paper or cardboard coverings. But if the worst happens and the frost kills them while the householders are away on a visit new plants can be set out from the reserve supply.

TRAIN THE VINES

If the city gardener is satisfied with any kind of fruit he may let the vines sprawl all over the ground at their own sweet will. If, however, he wants a first quality of fruit, his vines should be trained off the ground. This may be done in two ways, on posts, allowing a post to each plant, or on a trellis. The method the grower adopts should depend on the nature of the garden. He may save space by having a trellis along some sunny wall. But the experience of the writer has been that the tomato plant does not grow well along a wall or fence. It needs plenty of light and air all about it.

The plants shown in the accompanying illustrations were grown on stakes. This method is good in a small garden where space is at a premium. On the same principle that in a crowded city it pays to put up high buildings, the tomato plant can be made to economize space by training it up into the air.

LET TWO SHOOTS GROW

In regard to the training of the plants it has been the practice of the writer to allow two shoots of each plant to grow. All the rest as they appear in the axils of the leaves are nipped off. Then up go the ones selected to live. If properly cared for the plants will begin to bear close to the ground and will keep up the game until the autumn frosts prevent further expansion.

The plants shown in one of the accompanying illustrations were allowed to grow to the extent of two shoots each, and when about five feet high were allowed to branch. They ultimately grew to a height of eight feet six inches and produced a wonderful crop of clean, luscious fruit. They were Chalk's Early Jewel, and were planted in the house about the middle of March. They were planted in a central position and were not affected by the early frosts which destroyed plants in more exposed positions.

HOW TO TIE

As the plants grow the new growth must be tied to the stake before it can droop. The tying must not be too tight, but must allow for the swelling of the stem. If too tight the stem is pinched, and the sap prevented from rising. In tying a soft, cheap string should be used. A hard string or twine will not do so well as it cuts the tender surface of the stems.

Land for tomatoes should be rich, loose and loamy, but don't be discouraged if the land you have does not conform to this description. Work up what you have even if it be mixed with bits of brick and the scraps of broken china that have been thrown out of the house. Stir in a liberal supply of stable manure, and you will get results the first year, and better ones the next year if you stick to it. But, of course, the better the soil the better the results if all the other points are attended to.

There are other things than fruit and vegetables to be gained from handling a small plot of ground. Health, peace, contentment, knowledge and a preservation of man's best instincts are wrapped up in the cultivation of a garden.

Smooth **Rough and Wrinkled**

This illustration shows how the shape of tomatoes may be improved by selection and careful cultivation.

Vegetables and Their Sprays

Prof. E. M. Straight

When we ask men to spray the garden, we are often met by the objection: "Spraying is all right, but we shall never put poison on that part of a vegetable which later we intend to eat!" When the case of potatoes is cited, which already they are spraying, we are again told that that is different, for the potatoes are under ground, while only the top is touched by the spray. There can be no possible danger from this score. It has been shown that from eight to ten barrels of apples must be eaten at one time, and immediately after spraying, to get any bad results from arsenic. A few days after an application, there is not enough poison remaining to kill a canker worm. The same is true of copper. Thousands of sprayed plants must be eaten to get a tonic dose of copper, and many more are required to kill. A wagon load of celery must be eaten at one time to get sufficient copper to injure a man, so the danger is not great.

The Pan Method of Soil Sterilization

The Sterilization of Soils*

A. H. MacLennan, B.S.A., O.A.C., Guelph

The spread of many diseases and insect pests within the soil in the greenhouse has turned investigation work to find a solution. Perhaps the commonest example is the eel-worm or Nematode (Heterodera), which affects the roots of indoor tomatoes and Damping-off Fungus (Pythium), which destroys many seedlings.

Two results are very noticeable after sterilization: First, disease organisms and pests are killed or greatly reduced in numbers; second, while many of the bacteria in the soil are destroyed, those whose presence is beneficial remain, become much more active, and plant food is made more rapidly.

In a bacterial count of soil—sterilized and unsterilized—made by the Bacteriological Department of the College last year, the following results were obtained:

1. Unsterilized—One million six hundred thousand bacteria per cubic centimetre.

2. Sterilized—(a) in first two inches of soil, temperature two hundred and ten degrees, nine hundred bacteria per cubic centimetre; (b) at depth of six inches, temperature one hundred and seventy degrees, six hundred bacteria per cubic centimetre.

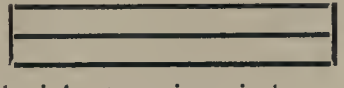
In number two the bacteria that remained were beneficial and aided in breaking down the plant food in the soil. The action of sterilizing is shown in the sturdier growth of the plants and their darker color.

Two methods are in use to-day,—steam and chemicals, the chief being formaldehyde and Toluol. The work with chemicals has been but little tried in this country, but in England has so far not given quite as good results as steam.

METHODS OF STERILIZING

There are three methods of steam sterilizing: First, by underground tile, the method explained by Mr. Streight in the February, 1912, number of The Canadian Horticulturist. This method is very easy where one uses sub-irrigation.

Second, by the laying of a system of three three-quarter inch iron pipes like this:



placed eight to nine inches under ground. In each side of each pipe, there are one-eighth to one-quarter inch holes every ten inches, thus . . . . . i.e., alternately. The steam is put in at a pressure of thirty to fifty pounds until it rises in a cloud from the bed.

Third. The pan method, of which a picture is shown. This pan is of galvanized iron of any convenient size,—say, three feet by nine feet, and six inches deep. This is pressed into the soil about two to three inches. Connection is made by hose to centre of top of pan. The steam is turned on at thirty pounds for thirty minutes. Where one renews the soil each year the soil that is used for potting up can be easily sterilized in a sort of oven made of wood side with pipes in the bottom, as in number two.

In all cases, the earth should be freshly dug over and friable in order that the steam may work through it.

We have done little with chemical sterilizers, the only one we have used being formaldehyde. It gave very satisfactory results, but the bed must be left ten to twelve days after application before planting, while with steam it is ready for use in twenty-four hours.

The greater part of our work has been on tomatoes. We have raised our average per plant by one and a half to two pounds of fruit. In lettuce and cucumber, the results have also been very noticeable. At Rothamsted Experiment Station in England, they have had very similar results to ours. A very interesting account of their work is given in the Journal of the Board of Agriculture for January, 1913.

*Outline of an address delivered recently before the Toronto Branch of the Ontario Vegetable Growers' Association.

Forcing Rhubarb

John Gall, Inglewood, Ont.

A simple means of forcing rhubarb that is specially advantageous after the crops indoors are more or less eshausted is that of raising supplies outdoors by artificial means. This may be done as soon as the worst of the winter is over, and is a practice that should be extremely popular, as anyone with a small amount of trouble may achieve results that are very satisfactory. For successional crops, outdoor forcing is much to be preferred. The plants should be forced where they are growing, and if a warm border is available, so much the better.

All that need be done in forcing a crop outdoors is to cover the crowns of the plants with barrels, tubs, boxes, or any such article which shall have a movable lid. Large barrels should be sawn in two. The top end of the barrel should be knocked out, and made to suit the purpose of a movable lid, this being removed for observation and air-giving, also for obtaining supplies when ready. These utensils should be embedded in stable manure and leaves, this material providing the necessary warmth to excite the crowns into growth. When leaves and stable litter are mixed in the proportion of about two of the former to one of the latter, a gentle heat may be provided.

It is surprising how simple and effective is this mode of forcing rhubarb. A splendid crop of luscious stalks may be readily obtained by these means.

On a soil containing large quantities of lime use superphosphate as a top dressing in the spring and at the rate of 300 to 500 lbs. per acre.

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2. Subscription price in Canada and Great Britain, 60 cents a year; two years, $1.00. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.
3. Remittances should be made by Post Office or Express Money Order, or Registered Letter. Postage Stamps accepted for amount less than $1.00.
4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.
5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.
6. Advertising rates, $1.25 an inch. Copy received up to the 18th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.
7. Articles and Illustrations for publication will be thankfully received by the Editor.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 11,000 to 12,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912	9,988
February, 1912	10,437
March, 1912	10,877
April, 1912	11,788
May, 1912	12,112
June, 1912	10,946
July, 1912	10,986
August, 1912	11,148
September, 1912	10,997
October, 1912	10,971
November, 1912	11,162
December, 1912	11,144
	132,556

Average each issue in				1907, 6,627
"	"	"	"	1908, 8,695
"	"	"	"	1909, 8,970
"	"	"	"	1910, 9,067
"	"	"	"	1911, 9,541
"	"	"	"	1912, 11,057

March, 1913..... 11,106

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed

THE CANADIAN HORTICULTURIST.
PETERBORO, ONT.

EDITORIAL

THE JORDAN HARBOR STATION

In a defence of the Jordan Harbor Experiment Station, which was under discussion recently in the Ontario Legislature, Hon. J. S. Duff, Minister of Agriculture for Ontario, according to reports in the public press, explained that one reason why better work had not been accomplished at the Station was because soon after the station had been started it was found that the soil was unsuitable for small fruits. This, if the Minister was correctly reported, can hardly be considered a satisfactory explanation.

The land used by the station was donated to the Government by Mr. M. F. Rittenhouse in 1906. Before the Government accepted this land it was examined by officers of the Department of Agriculture and of the Agricultural College, who reported on its suitability for the purposes for which it was intended. The Government was fully aware of the work that it was purposed should be undertaken at the new station. If the soil was not suitable its acceptance for the purpose should either have been declined then or arrangements made for the purchase of additional land adjoining better adapted for experimental purposes.

When it was announced that the Government had decided to establish an experiment station at Jordan Harbor keen interest was taken in the proposal by the fruit growers of the province, more especially those of the Niagara District. This led The Canadian Horticulturist to send one of its editors, a graduate in horticulture of the Ontario Agriculture College, to Jordan Harbor to inspect the soil of the proposed station. In the July, 1906, issue of The Canadian Horticulturist, the introductory article dealt with the soil conditions at the proposed station, as did the leading editorial. In both the article and editorial it was shown that while otherwise well suited to its purpose, the soil of the proposed station had two defects: It lacked the protection of the mountain, only two miles and a half away, and it also lacked a sufficient quantity of light soil to be ideal for experimental work with peaches and other tender fruits. It was pointed out that this defect could be overcome by the purchase of some suitable land across the road, on which the Government had been given an option on reasonable terms. This option, although the need of the land was fully recognized at the time or the option would never have been given, has never been taken up by the Government. We fail to see, therefore, after seven years have passed, why the Government should advance as an excuse for the fact that the station has not accomplished more, that the station soil is not suitable.

We have no desire to criticise the Government unduly in this matter, but its utter failure to deal with the station in the broad, sympathetic manner that the fruit growers have hoped for and which the Department of Agriculture has extended to other branches of its work, has resulted in several years of largely wasted efforts at the station. Nothing will remedy these conditions until the Government completely reverses its policy and treats the station with the same generosity and foresight that is characteristic of the management of the leading fruit experiment stations in the fruit districts of the United States.

A NOT UNEXPECTED RESULT

The practical failure of the National Land Fruit and Packing Company, which was launched some two years ago with a blare of trumpets, was not entirely unexpected by those in close touch with the fruit interests of Ontario. In discussing the undertaking of the company in the May issue of The Canadian Horticulturist in 1911, we pointed out editorially that counting the time lost by the employees of the company going to and from their work and from unfavorable weather it was a safe estimate that the farmers could care for their orchards for one-half the money it cost the proposed company where close supervision of the work in the orchards was undertaken.

The project had many commendable features and in various ways has had beneficial results in the province. Many fruit growers have been led to appreciate their orchards more fully and to take better care of them. The main cause of the failure of the project appears to have been the fact that an effort was made to accomplish too much at once. The great majority of successful business enterprises have grown out of small beginnings. In this case an effort was made by men lacking sufficient knowlege of the underlying principles of the industry concerned, to launch a large enterprise without sufficient preliminary experience. Had the promoters been content to operate a few orchards for a year or two before embarking on the larger enterprise their prospects for success would have been greatly improved.

It appears that an effort may be made to continue the enterprise. While many will doubt its ultimate success there are few, if any, who would not like to see it succeed if for no other reason than to avoid the loss that will otherwise be sustained by the many investors who were led to invest their money in the expectation of receiving liberal dividends thereon.

USE MORE TACT

April is the month when most of our horticultural societies begin their summer activities. The officers of societies as a rule realize the importance of obtaining the sympathetic support of the editors of their local papers. Many, however, fail utterly to do so. In some cases this may be due to a defect in the make-up of the local editors, but in the majority of cases we believe that it will be found to be due to a failure on the part of the officers of the society to clearly understand how best to set about the work in hand.

Most societies make the same mistakes. In the first place they are apt to find fault with their local editors for not taking a deeper interest in horticultural improvement. Thereby they overlook the fact that many other classes in the community are constantly pressing their claims for recognition upon the editor whose time and space in every case are limited. Other societies sometimes prepare reports for the local papers, but send these in for publication too late in the day for them to receive the attention or setting required. Other societies prepare their articles more for consumption by horticultural enthusiasts, losing sight of the fact that the local papers cater to what is commonly called "The Man on the Street."

A horticultural society should first appoint a press committee and have its members wait on the local editor to enlist their support. Later they should prepare newsy, interesting notes, including descriptions of local gardens, accounts of particularly good plants or flowers grown by citizens, and plans for city improvement, and have these reach the editors, where possible, the night before the day of publication, and at the latest on the morning of publication. In the great majority of cases where this is done there will be little or no difficulty experienced having such material published. A little judgment, tact, and enthusiasm will accomplish wonders in the handling of editors, as well as with other ordinary mortals.

Cooperation is slowly but steadily making progress in Canada. Local fruit growers' associations have now advanced to the stage in different provinces where they are cooperating on a more extensive scale through provincial organizations. In most cases these larger organizations are proving a success. The vegetable growers' associations are now becoming active along somewhat similar lines. The success of the Ottawa branch of the Ontario Vegetable Growers' Association in the cooperative purchasing of supplies, as described elsewhere in this issue, should encourage other similar organizations to undertake this line of work. In cooperation, as in other lines of effort, we learn by our failures. The successes of to-day have been made possible by the failures of yesterday.

The truth of the old saying that the early bird catches the worm will come home this month with force to many amateur gardeners who have neglected to lay plans for their gardens and summer work until the advent of warmer weather brought these matters to mind. If all such will only remember to do better next year their gardens another season will show the benefit of their foresight.

PUBLISHER'S DESK

We anticipate that our readers will enjoy this, our Second Annual Spring Gardening and Planting Number. Never have we had a more capable list of contributors. Every contributor in this issue has had wide experience in the maters dealt with. Out of this experience they are endeavoring to benefit the readers of The Canadian Horticulturist. We are satisfied that their efforts will be crowned with success.

How do you like the front cover of this issue? Does it not make your fingers ache to be at work in the garden and your feet long for a stroll in the woods? How do you like Mr. Smith's description of the gardens of Walkerville, the town of which he is so justly proud? Does it not make you feel a desire to promote the beautification of your home town? Can you resist the temptation to grow your own tomatoes, if you are not already in the habit of doing so, after reading the results of Mr. Davey's experience. Those who have never grown roses will feel like doing so after perusing Mr. Hull's interesting article. Space does not permit our mentioning the many other splendid articles in this issue. We hope that our readers will read them all and gain fresh enthusiasm, as well as valuable suggestions in the process.

The February, March, and April issues of The Canadian Horticulturist have surpassed all previous issues in size, in the general excellence of their illustrations and reading matter, as well as in the volume of business carried. We feel somewhat proud of the fact that the volume of advertising carried has showed an increase of almost fifty per cent. over the business of last year, which established new records up to that time. This means that it will soon be possible for us to make still further improvements in The Canadian Horticulturist. We are busy planning them.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Hortioultural Societies.

Markdale

The Markdale Horticultural Society this year has issued an attractive option list. It includes a choice of plants and shrubs to the value of one dollar. In addition, members will be given a year's subscription to The Canadian Horticulturist and a ten cent package of Burpee's sweet peas.

The options were as follow, members being allowed to take one of each of several kinds, all of one variety, or to make their choice in any way that suited them best to the amount named:

Shrubs.—Hydrangea 30c, spiraea—Van Houetti 30c, snowball (Virbunum Opulus) 30c, syringa (Golden Leaves) 35c, spiraea (Anthony Waterer) 35c, Norway spruce 25c.

Rambler and Climbing Roses.—Crimson rambler 30c, Dorothy Perkins 30c, Gem of the Prairie 30c.

Hybrid Perpetual Roses.—Mable Morrison 25c, Persian Yellow 25c, Chestnut Moss 25c, Glory of Mosses 25c.

Climbers.—Virginia Creeper 25c, Jackmanii Clematis 50c, Clematis Paniculata 25c.

House Plants.—Begonia Rex 25c, Hydrangeas (Hosea Hortensis) 35c, Rubber tree 90c.

Cactus Dahlias.—General Buller 30c, Iceberg 25c, J. H. Jackson 25c, Floradora 25c.

Show Dahlias.—Queen Victoria (deep yellow) 25c, Modesty (pinkish white) 30c, Apple Blossom 25c.

Dorment Gladiolus (Bulbs). — Childs (mixed) doz. 50c.

Begonias (Bulbs).—Tuberous - Rooted (single) 10c.

Cannas (Roots).—Mad. Crozy (foliage, bright green) 15c, King Humbert (foliage, rich reddish bronze) 15c.

The children in the public schools in the town of Strathroy, Ontario, were encouraged last year to grow flowers. In the fall an exhibition of their products was held. The School Board gave the children a half-holiday. The display was a most creditable one. Were similar encouragement given the children in other towns, equally satisfactory results might be obtained.

Marketing British Columbia Fruit

The following extract from a statement issued by the directors of the British Columbia Fruit Growers' Association, will be of interest to eastern fruit growers, as well as to those in the west:

The generally low prices received for fruit during the past season have made pertinent and proper a discussion of the fundamental considerations affecting the future of our fruit growing industry. Many different opinions are held as to the remedy for a situation which, if continued, would be intolerable. Your directors have fully considered the facts, and have endeavored to reach proper conclusions in regard to them.

The principal condition affecting the prices of British Columbia fruit was the very large crop in the United States, resresulting in the importation of large quantities of American fruit at low prices, or what is worse, shipped on consignment—all soft fruits yielded very much above the average. The figures are not yet to hand, save that we know that some 40 000 carloads of peaches were shipped commercially last year in the United States. The United States apple crop was thirty-four per cent. larger than the average of the last ten years. It was twelve per cent. larger than the 1912 crop. It totalled around forty million barrels. The quality was generally high, fifteen per cent. better than the ten years' average. In the northwestern states, the box apple states, about twenty thousand carloads were shipped, as against only nine thousand in 1911.

As a result of these extremely large crops, prices would naturally be low, supply greatly exceeding demand; twenty-five per cent. of the Ontario apple crop is said to have rotted on the ground; there has been a similar condition in New York State. The Western States, however, will get something for practically all their apples. British Columbia did comparatively well in the matter of prices, for our fruit brought more than in any other section of America.

Other general conditions which helped to lower the prices were:

First. Tightness of the money market of the United States and generally throughout the world.

Second. The largest proportion of boxed apples to barrels ever experienced.

Third. Defective methods of picking and packing, which injured fruit, and lessened its keeping qualities.

Fourth. Lack of storage facilities.

Fifth. The fruit growers require their money in the fall, and bank loans are not made on unsold apples; apples must, therefore, be sold in the fall.

Sixth. Our fruit distributing organization both in British Columbia and in the northwest states, in the latter particularly, should be made much stronger.

Seventh. The boxed apple business is a new one, and little is known about effective means of distributing it to the best advantage.

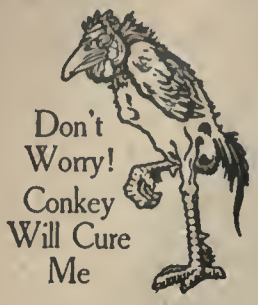
Eighth. Practically no advertising is done to increase the demand for the western boxed apple—while two hundred thousand dollars is spent in advertising California oranges.

Ninth. The very large apple-handling concerns in England and New York are working to depress prices on boxed apples.

Tenth. British Columbia is fighting for her natural markets, which we are just beginning to adequately supply, and in which our competitors are strongly entrenched.

Eleventh. Because of a peculiar condition with regard to the Fruit Marks Act

(*Continued on page* 118)



Do not let your chickens mope and die. Send for catalogue, with price list of Reliable Poultry Remedies, and prices of Eggs for hatching from different breeds of Poultry, including Turkeys, Ducks and Geese.

J. H. RUTHERFORD

Box 62

CALEDON EAST, ONTARIO

How Eastern Fruit Men May Retain a Market in the West

R. B. Ireland, Saskatoon, Sask.

Fruit growers East and West are both competing for a place on the markets of Western Canada; and in this case the wise men do not come from the East. The Westerners—the fruit growers of British Columbia, Oregon, and Washington—are taking first place and rapidly ousting the Ontario producer. If Ontario producers wish to retain the Western fruit trade it will be necessary for them to observe some of the following points, which from my experience in the fruit trade of the West, I judge would enable them to meet the consumers' demand.

For small fruits a box of a pint to a pint and a half with 18 boxes to the crate and the crates of heavier material than the present 24-box crate now used is advisable. This applies to boxes for strawberries, raspberries, and all the more juicy fruits, as the present imperial quart box is too deep for long shipment, the lower berries being weighed down by those above. In the shallower box the berries would be only two to three layers deep and would keep better. If a slat box crate with ends from nine-sixteenths to three-quarters of an inch in thickness were used, the crates could then be piled in a car and would not be damaged by handling or the rolling of the car. In a crate containing 18 boxes there would be sufficient ventilation to prevent the fruit moulding.

PACKING TENDER FRUIT

Such fruit as peaches, pears, plums, tomatoes, and early apples should be packed in a small box about eight to nine inches square and four to the crate; or eight to the crate if there is a bottom placed under the top layer to keep them from the under boxes by an inch or so. The boxes should be deep enough to contain not more than two layers of paper wrapped fruit of all the soft varieties as the fruit, coming in contact and rubbing by the vibration while in transit, begins to decay and therefore lowers the profit of handling and also the desire to order any more from the same source.

Ontario fruit men must adopt a standard box of about 60 to 70 pounds for the apples and hardier pears. For several reasons the box is preferable. The barrels now in use are unsatisfactory. They are too heavy for one person to handle and have to be rolled or dropped to places required. Many people prefer to buy two or three kinds of apples or one or two boxes of apples and one box of pears; or they may be driving many miles into the country with a buggy in which a box of pears or apples is all they can accommodate. And still another and all too frequent a reason why the box is preferred, is that many have only $2 or $2.50 which they feel they can spare to buy apples. All these are valid reasons for the producer complying with the requirements of the customer.

TO DISCOURAGE DISHONESTY

As regards grading of fruit and honesty in packing, I believe that a law requiring the packer to place his name on each outer crate in type plain enough to be read dis-

Surplus Stock

We offer subject to sale the following stock, which we guarantee to be true to name, No. 1. stock in every respect, 5-7 ft. high. Price F.O.B. Pointe Claire, $27 per 100.

200 Alexander
200 Baldwin
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Also complete list of Ornamental Shrubs and Trees of all kinds.

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Makes poor land fertile and keeps fertile land most productive.

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Say you saw this ad. in The Canadian Horticulturist

tinctly would soon compel the dishonest packer to go out of business. The consumer would learn that he, the packer, was dishonest. By making the law so that an inspector or any constable or police officer could summon any person using a receptacle with another's name on it or packing fruit not true to name and grade, before the most convenient magistrate for trial and place the risk beyond the likelihood of gain by a stiff penalty, this constant receiving of doctored boxes and barrels experienced in this country would be stopped. And from many years of experience on the market at Hamilton, Ont., before coming here three years ago, I can say the writer is pretty sure it is possible to have Ontario fruit so good as to hold the same respect in this western country as the fruit of any other place.

THE TRANSPORTATION PROBLEM

I know the producers in Ontario are handicapped by the railroads into these provinces giving them poor accommodation. There is no reason why fruit should take 11 or 12 days to get from the Niagara Peninsula to this point, three or four of which are spent at Sutherland Station, three miles from here. If proper methods of packing were followed there would soon be enough fruit in cars shipped west that the railroads could also, by cooperation, place their cars at a central point such as Hamilton or Toronto, and then make a solid fruit train to some central point such as Brandon, Regina, Moose Jaw, or here, and then have those cars attached to the first freight to continue the journey to destination. The writer believes this would prove as profitable to the railway companies as the present arrangements by which they forward settlers' effects and other merchandise. The writer is a firm believer in compelling the railroads to give the people the accommodation to which they are entitled. The people have helped our railroads handsomely with guarantees of bonds, bonuses, and grants of different kinds; and fair play hurts no person.

A third reason why the Ontario producer is not meeting the market demands to best advantage is the same as explains the loss of millions of dollars to the farmers of the West on their grain, no arrangements having been made to hold the fruit of keeping varieties. As it is there is a slaughter market as soon as the fruit is picked. The farmer builds large buildings to house his stock so that he may not be forced to sell all off in the fall of the year, and then buy again in the spring. He does not make this provision because he wants the trouble of feeding the stock all winter, but because he knows if that were the rule he would have to sell when all his neighbors were selling; therefore, he would get a low price, and when he came to buy in the spring he would have to buy in competition with many of his neighbors and therefore pay a high price. So he invests his money in material, buys fittings, etc., and when the buildings are completed he disposes of what he considers he can do without at a price that he dictates to the purchaser, whether that customer is a consumer or a dealer.

STORAGE FOR FRUIT

If Ontario fruit growers would use the same business tact with regard to their perishable produce as they use with their stock they would reap handsome profits. They must realize that cooperation in building storage plants for their fruit is by far a cheaper way than holding pri-

Douglas Gardens

Oakville, Ontario

We invite special attention, for Spring Planting, to the following:

PERENNIALS—Aquilegia (Columbine), Hardy Asters (Michaelmas Daisies), Astilbe (Spiraea), Shasta Daisies, Coreopsis, Delphiniums (Larkspurs), Hemerocallis (Day Lily), Hibiscus, Kniphofia (Torch Lily), Phlox, Physostegia (False Dragon's Head), and Spiraea (Meadow Sweet).

BULBS and TUBERS—Cannas, Dahlias, and Gladioli.

BEDDING PLANTS—Antirrhinum (Snapdragon), China Asters, Geraniums, Salvias, and Stocks.

These are all described in our Spring Planting List, a copy of which will be mailed free on application.

JOHN CAVERS

Fruit Trees, Shade Trees and Ornamentals

We have a full stock of the leading sorts of fruit trees and bush fruits. Our stock of **APPLES, PEARS, CHERRIES** and **PLUMS** is exceptionally fine. Should you not decide now to plant that orchard this spring? Each year saved is one season gained. We give each order special care, and know that for nice rooting and grading **OUR GOODS ARE UNEXCELLED.**

We breed our trees as much as possible from selected mother trees, and are now preparing to engage an expert Horticulturist, who will devote his entire time and skill to selecting breeding trees. Will it not pay you to deal with an up-to-date firm? We know it will be to our mutual advantage.

OUR RODERICK CAMERON has returned from Great Britain and the Continent, bringing with him a splendid collection of the very latest creations in hardy herbaceous perennials, Roses, Shrubs, Evergreens, etc., from the best English, Scotch and Continental Nurseries, including the **MACKENDRICK COLLECTION OF ROSES,** embracing the finest of hardy sorts. The majority of these cannot be obtained elsewhere in Canada.

HORTICULTURAL SOCIETIES and others would do well to get our collections, as they have been chosen with great care by a man who has had a lifelong experience amongst the flowers.

THE AUBURN NURSERIES, Ltd.

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FAVOURITE FLOWERS from the BEAUTIFUL OLD-FASHIONED GARDENS of ENGLAND

KELWAY'S famous Hardy Herbaceous Plants are modern developments of the old English favourites. The cottage "Piny Rose" has become the Pæony, incomparable in form, colour and fragrance. The old-fashioned Larkspur has developed into the stately blooms of the Delphiniums; Gaillardias, Pyrethrums and the rest, all serve to bring back the charm of the old-world English garden. Special care is taken in packing plants to arrive in America in good order, and they can be relied upon to thrive with a minimum of attention.

Full particulars and illustrations given in the Kelway Manual of Horticulture mailed free on request to

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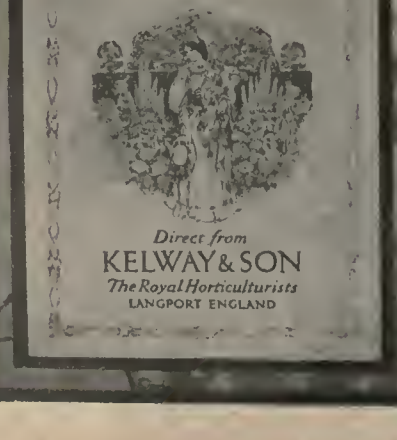

Send — now — for a copy of the Kelway Book Free—and make your Garden glorious.

vately and a much better way. One ha to haul his fruit anyway, and it is litt more trouble to take all one has for sa to some central point on the railway whe one can have laborers to pack it schools in grading of fruit. At such a point on knows what the inferior fruit will brin for the canning, evaporating, or cid companies to manufacture. One know that at such a cooperative station th companies' brand is not disgraced by son unprincipled, selfish person who seeks gain a few dollars at the expense of lo ing thousands of dollars to the many the business. Some may say that holdin the apples or fruit might not be conve ient to many. The writer has also co sidered that point and knows that the m who may be cramped for money could b satisfied better by borrowing the mon from the banks, upon his warehouse r ceipts, than he would by taking all th cash he could get when the goods ha been sold on a slaughter market.

The only thing necessary for the pr ducer in Ontario to do to hold his Wes ern trade is to compel honesty in gradin adopt a crate enclosing a number of sha low boxes for the smaller fruits, which w admit of their being piled up high in th car without crushing, cooperate in packin at central points with storage buildings let crop go gradually on to the market order to keep a market from being ove loaded; pack the fruit of keeping var ties in boxes which suit the convenien of the customer, as he can buy to the lim of his money only and no more; and las ly, endeavor to get the fruit on to th market at the consumer's door in as goo condition as possible, as the better th condition of the fruit and the better he satisfied with his purchase the oftener will buy your goods.

Items of Interest

A resolution was passed at a rece meeting of The St. Joseph's Fruit C operative Society in the Province of Qu bec, requiring every member of that A sociation to spray his orchard.

Mr. P. W. Hodgetts, Director of Hor culture for the Province of Ontario, preparing, for the Department, a bill f submission to the Legislature which w give incorporated fruit growers' associ tions wider powers.

Mr. John A. Muir, Port Dalhousie, O tario, last year planted a number of u roasted peanuts, which grew up with th other vegetable crops in his garden, though no particular attention was giv to them. Mr. Muir obtained a fair cr of peanuts. They grow underground l potatoes.

Trees Roses Shrubs

Apple Trees, No. 1, Baldwin, Spy' McIntosh, &c., $30 per 100.
Cherry, Pear and Plum Trees, No. 1, $30 per 100.
Roses, 2 year No. 1, all kinds, 25c, five for $1.
Shrubs, 2 year No. 1, all kinds, 25c. five for $1.
5000 Cuthbert Rasp., No. 1, $7 per 1000.
Peach and Quince Trees, Grape Vines, Currants, Gooseberries, Asparagus, Rhubarb, Dahlias, Paeonies, Gladiolus, &c., at attractive prices.

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—there is need for a Morehead Steam Trap. Condensation in steam lines is akin to matter out of place—means wasted energy.

If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. **Ask for Trial Trap.**

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Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
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Pilkington Bros., Limited

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Are the most

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Greenhouses that can be constructed. Years of actual test and the experience of large and small growers have gained for our houses the reputation of being the most satisfactory ever erected for vegetable or flower growing, or private conservatories.

¶ Plans prepared for complete plants and equipment at a moderate cost: all or part of the necessary materials supplied and houses of any size erected under our personal supervision if desired by builder.

¶ Write and tell us the kind of houses you desire to erect or ask for question blank and we will mail you our descriptive bulletin by return of mail.

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Lesage Fertilizer for Fruit and Vine	447
Lesage Fertilizer Special for Tobacco	448
Quebec Special for all Kinds of Crops	331
Fine Ground Bone	330
Thomas Phosphate Powder (Caledonia)	338
Lesage Royal Potato Manure	449

For Catalogue and Prices write to

LESAGE PACKING & FERTILIZER COMPANY, Ltd.

Head Office: 53 St. Paul, MONTREAL

AGENTS WANTED

BASIC SLAG

Renovates Old Worn Out Pastures Without Re-Seeding

There are thousands of farmers in Ontario whose pastures have been worn out by the continued grazing of dairy stock. Such lands have been drained of fertility and now grow only poor, worthless vegetation. Clover has entirely disappeared. This need not continue. A dressing of Basic Slag applied broadcast at the rate of 1000 lbs. per acre will bring such pastures back into good heart, and double or treble their capacity for stock carrying. The effect of such an application should be apparent for four or five years.

Basic Slag is being used in thousands of tons in the Maritime Provinces and Quebec, and the consumption in Europe amounts to over two million tons per annum. It is therefore no untried Fertilizer. Every farmer from the Old Country knows about Basic Slag, but for your own satisfaction ask the Department of Agriculture Instructor for your district, or the editor of any farming journal as to its merits. Basic Slag is the ideal Fertilizer to apply to stiff clay lands, to wet, marshy fields and to all soils which have become sour. If you have any such pasture buy one ton of Basic Slag and broadcast it over two acres, applying it at the earliest opportunity—the sooner the better.

Until our selling arrangements in Ontario are completed, you can be supplied direct from the Factory at $20.00 per ton, freight prepaid to your nearest station—cash with order.

Make this experiment and you will feel grateful to us for bringing the merits of Basic Slag under your notice. An interesting pamphlet giving particulars of the results obtained by leading agriculturists from the use of Basic Slag, will be forwarded by post on application to

THE CROSS FERTILIZER CO., Ltd.
SYDNEY, N.S.

Or to their Sales Agents for

Western Ontario, MR. A. E. WARK, Wanstead
Eastern Ontario, MR. A. L. SMITH, 220 Alfred St., Kingston

Sales Agents Paid

Last year the Wentworth (Ont.) Fruit Growers' Association sent its manager, Lorne H. Carey, to the western provinces to market its crop of fourteen thousand barrels of apples. It cost the Association one thousand dollars and the results obtained are believed to have been satisfactory, as not only were good prices obtained last year, but already orders have been received for about eight thousand barrels of this year's crop.

The prices received amounted to about three dollars for Number One Spys, Baldwins, Russets, and Kings, with two dollars fifty cents for Number Twos. Fall apples brought low returns. Shipments on consignment to Great Britain were not satisfactory. Baldwins were the leading variety exported and the returns were low. Mr. Carey, the manager, is inclined to believe that there was an "understanding" between the commission men in the Old Country, for there was a variance of only two cents in the returns from different fruit firms. These prices included about one dollar each for expenses of barrel and handling, so that the grower got somewhere around two dollars net for his apples.

A Special Offer

The Canadian Horticulturist has completed arrangements with The Fruit Grower and Farmer, published at St. Joseph, Mo., by which we are enabled to offer a year's subscription to that publication and The Canadian Horticulturist for only $1.15. The regular subscription price of The Fruit Grower and Farmer is $1 a year, plus twenty-five cents for extra postage charges. Thus the regular rate of The Fruit Grower and Farmer and The Canadian Horticulturist would be $1.85.

The Fruit Grower and Farmer is one of the leading fruit magazines of the United States. This, therefore, is an exceptional opportunity for readers of The Canadian Horticulturist who would like to keep in touch with fruit conditions in the United States to do so at low cost. All remittances should be sent direct to The Canadian Horticulturist, Peterboro, Ontario. Remember! Only $1.15 for two papers for a year, including postage.

Imperial Bank
OF CANADA
Established 1875
HEAD OFFICE TORONTO

Capital Paid-up.	6,770,000.00
Reserve Fund	6,770,000.00
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D. R. WILKIE, President and General Manager
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Branches and Agencies throughout the Dominion of Canada
Special attention given to collections
Savings Department at all Branches
Interest allowed on deposits at best current rates

Spray better if you would have better fruit—more *profitable* fruit. Statistics *prove* that well-sprayed trees produce 25 to 75 per cent more fruit and bring 25 per cent higher prices than unsprayed or poorly sprayed trees. Neglected and poorly sprayed trees mean small yields and stunted, rough and wormy fruit. Cheap, inefficient sprayers are an expensive nuisance.

GOULDS RELIABLE SPRAYERS

are the world's sprayer standard. They give the utmost satisfaction under the hardest conditions. Years of experience prove it The Goulds way of spraying is easy. The pump works easy and evenly, the nozzles never clog but spread the solution properly. The agitators keep the solution well mixed and the materials used are chemical proof. Made in all types for hand or power at prices to suit everyone.

Get the Facts

"How to Spray—When to Spray—Which Sprayer to Use"

Every farmer, every fruit grower should have a copy of this great book. Brimful of just the things you want to know about spraying. Write for it today—it's free. Act now!

THE GOULDS MFG. CO., 17 W. FALL ST., SENECA FALLS, N.Y.
"Largest Manufacturers of Pumps for Every Service"

Mature your crop early

HOW?

The market gardener gets the top of the market for early produce, and the general farmer saves many dollars from early frosts by using a **soluble,** high-grade complete fertilizer, like one of our Stockbridge manures. There is no mystery about it. A crop, like a calf, will grow quicker and healthier on a full ration, **but the ration must be right.** The

Stockbridge Manures

offer this sort of ration for crops.

The Stockbridge Manures were formulated by the late Professor Stockbridge of the Massachusetts Agricultural College and were introduced forty years ago. They have been improved and kept up-to-date. The Stockbridge and all the other Bowker brands are soluble, active, sure. They are made from the best materials by special factory methods. Prompt service and moderate prices go with them.

We want Agents in unoccupied territory. Write today for prices and terms; this may mean a good business for you if your act at once.

Write anyway for our illustrated catalogue and calendar. We want you to know what we can do before you buy your spring fertilizer.

BOWKER FERTILIZER COMPANY

73 Lyman Street, Buffalo, N. Y. 39 Chatham Street, Boston, Mass.

Original and largest manufacturers of special fertilizers.

WE ARE PROTECTED BY THE PRODUCE REPORTER CO'S SYSTEM — CREDIT BOOK — ALL CONTRACTS GOVERNED BY THE TRADING RULES AND GRADES

Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

Big Ben

Use Big Ben All Day Long

Big Ben not only gets you up on time every morning, but he serves the whole family all day long as a reliable clock to tell the right time by.

He's really two good clocks in one —a crackerjack of a time-keeper—a crackerjack of an alarm.

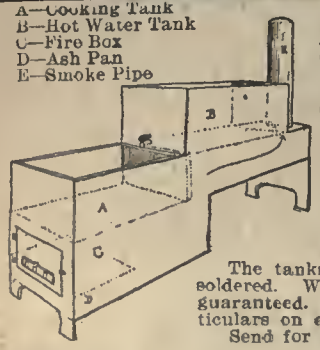
He can ring you up in the morning just when you want and either way you want—five straight minutes or every other half minute for all of ten minutes.

If you're a light sleeper, turn on the half minute taps before you go to bed. If you sleep heavily, set the five-minute call and you can slumber then without the get-up worry on your mind.

Then when you're up and doing, carry Big Ben downstairs into the living room so that the whole family can use him to tell the right time by. He stands seven inches tall and his great big open face can be seen distinctly across the largest room.

Big Ben is triple nickel-plated and wears an inner vest of steel that insures him for life. His big, bold figures and hands are easy to read in the dim morning light. His large, comfortable keys almost wind themselves. He rings five minutes steadily or ten intermittently. If he is oiled every other year, there is no telling how long he will last.

He is sold by 6,000 Canadian dealers. His price is $3.00 anywhere. If you can't find him at your dealer's, a money order mailed to his designers, *Westclox, La Salle, Illinois*, will send him anywhere you say, express charges prepaid.



Make Your Own Spray

Home Boiled Lime Sulphur is being used in increasing quantities by leading fruit growers and fruit growers' associations. They find that by making their own spray they can effect a considerable money saving, and at the same time produce a preparation that will do the work thoroughly.

It is an easy matter to make home boiled lime sulphur. The chief essential is a proper spray cooker. We manufacture two kinds of cookers, one with a single tank, and one with a double tank. (See illustration.) They are designed especially for this purpose, and will give the greatest efficiency with the greatest saving of fuel. They can be used for either wood or soft coal.

The tanks are made of heavily galvanized steel, thoroughly rivetted and soldered. Will not leak. They are built to give satisfaction, and are guaranteed. Made in five sizes, capacity 30 to 75 gals. Prices and full particulars on application. Get your outfit now. Write us to-day.

Send for pamphlet illustrating the finest pruning saw on the market.

STEEL TROUGH AND MACHINE CO., Ltd., TWEED, Ont.

Cronk's Pruning Shears

To introduce a high-grade pruning shear at a very low price, we are now offering direct, provided your dealer does not have them, our 25-inch No. 09½ guaranteed pruner at $1.25 per pair, via parcel post, prepaid; cash with order.

CRONK & CARRIER MFG. CO., ELMIRA, N. Y.

Where do We Stand in Apple Industry?

P. J. Carey, Dominion Fruit Inspector

After a season such as the past year has been, many people are asking the question, where do we stand in the apple business? Have we overdone the industry? Is it advisable to plant out more apple trees? To these questions I make answer that it is advisable to plant still more trees, but these must be only of desirable varieties. We must cut out the undesirables. We must give the people what they are asking for—the varieties they want.

In the West, and in our larger cities even here in the East, we are up against competition from American apples such as the Roan Beauty, which are even now retailing in Toronto at five cents apiece. They are not up to much in quality but they have a most attractive appearance. They are clean apples, perfectly formed, and attractively packed.

The bad state of the markets this past year put a great many irresponsible buyers out of business. The money from abroad usually advanced to them was withdrawn. Only the reputable buyers and the co-operative associations were left, and thus there were not enough buyers to go around, and many apples of necessity went begging for buyers, realized a very low price, and in some cases even rotted in the orchards.

The key to the whole situation is to produce good fruit, properly care for it, properly pack it, and market it where the people want it. Our Ontario and Eastern apples cared for and packed as they should be, have Western apples beat to a frazzle. We have got to raise better apples and larger apples having abundance of high color. There is a good thing in apples yet—in fact, they are the best thing yet on the farm—but it all depends on how you treat your orchards. "Eternal vigilance in orcharding is the price of success."

Experience with Commercial Fertilizer

J. W. Clark, Brant Co., Ont.

I have been using commercial fertilizer for 15 years and fully appreciate its value. I value it especially for fruit and vegetables. Before one can use commercial fertilizer to best advantage, however, he must thoroughly understand the needs of the plants to which he is applying fertilizer, and he must also have a good knowledge of the deficiency in his own soil. Otherwise, how can he decide what fertilizers are needed?

Experimental experience is the only way in which this knowledge can be gained. From my own experience in orchard work, I have found that mature trees show best results when treated with acid phosphate and muriate of potash, about 200 lbs. to the acre. I prefer finely ground bone as a source of supply for acid phosphate. This bone is not in a very available condition, and it must be applied as early in the spring as possible.

In addition to this, I have been using

For Sale Strawberry Plants

Parsons and Williams Varieties, also Cuthbertson Raspberry plants

D. SULEY, Successor to **W. E. Fitch**

Niagara Falls South, Ont.

SPRAY AND FIGURE ON THE PROFIT SIDE OF THE LEDGER

TO-DAY—if you would make the most of your Orchard and Garden—you must protect them from insect pests.

Sherwin-Williams New Process Arsenate of Lead is sure death to leaf-eating insects. It is a strictly neutral arsenate and for that reason is superior to ordinary acid arsenates.

By neutral, we mean that all the arsenic, which is the poisoning agent, is taken up or neutralized by the lead. This gives you an arsenate that will kill the bugs, but will not burn the foliage or russet the fruit. A neutral arsenate is the only safe arsenate to use with Bordeaux or Lime-Sulphur.

Write us to-day for a copy of "Spraying a Profitable Investment." A new edition will be ready in a few days. It is probably the most complete booklet on insects and the way to control them, that has been printed.

THE SHERWIN-WILLIAMS CO.
of Canada, Limited
MANUFACTURERS OF INSECTICIDES
OFFICES & WAREHOUSES: MONTREAL, TORONTO, WINNIPEG, VANCOUVER, LONDON, ENG.

NA-DRU-CO
TRADE MARK
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C Co

NA-DRU-CO ROYAL ROSE TALCUM POWDER

NA-DRU-CO Royal Rose Talcum is as comforting to Baby's tender skin as it is to Mother's wind-chafed cheek or Father's chin smarting after a shave. Its remarkable fineness—its pronounced healing, antiseptic qualities — and its captivating odor of fresh-cut roses — have won for Na-Dru-Co Royal Rose Talcum the favored place on the dressing tables and in the nurseries of the most discriminating people.

25c. a tin, at your Druggist's—or write for free sample to the

NATIONAL DRUG AND CHEMICAL CO. OF CANADA, LIMITED, - MONTREAL.

191

Peerless

Guaranteed Fencing

Strongly made and closely spaced—making it a complete barrier against large animals as well as small poultry. Top and bottom wires No. 9—intermediates No. 12 wire—made by the Open Hearth process which time and other tests have proven to be the best material made for the manufacture of wire fencing. Send for literature. Ask about our farm and ornamental fencing.

Agencies nearly everywhere. Live agents wanted in unassigned territory.

The Banwell-Hoxie Wire Fence Co., Ltd., Winnipeg, Man., Hamilton, Ont.

a cover crop which is plowed down each year and every third year I make an application in the orchard of barnyard manure. Where wood growth is desired nitrate of soda is the desirable fertilizer, but I find that with bearing trees the nitrate tends to delay maturity, and its use will not be advisable on winter varieties, especially where color is essential.

Fertilizers, however, are not all. The fruit grower must ever bear in mind the importance of humus in the soil as a retainer of moisture. Proper pruning, thorough spraying, and cultivation are the other factors in successful fruit growing.

Transportation Problems*

E. E. Adams, Leamington, Ont.

In both America and Europe railways traverse the country east, west, north, and south, with lateral lines that cover an immense territory, and give service, both passenger and freight, to millions of people. We find people in Europe are able to send us oranges, lemons, raisins, and other commodities, first by steamship and then by railways, and all these are given to us at such low prices that we often wonder how it can be done. It all comes largely from the low freight rates.

The people of Australia and New Zealand send to our shores mutton, butter, and similar products in large quantities, and compete with our growers. From Spain we receive onions at such low prices it really does not pay us to grow the large varieties here. I am told that these have been laid down in Toronto at one dollar sixty-five cents a case of about one hundred and thirty pounds, even though we have a duty of thirty per cent. against them. We find, also, on account of low freight rates, that our country this season is fairly flooded with onions from the United States. We also are having potatoes delivered in the province of Ontario from New Brunswick, and I understand the freight rate is twenty cents a hundred pounds. We have to pay thirty-two cents a hundred pounds on onions to the same province. Just why there should be such an unfair rate, we who are engaged in that business fail to see.

There are many imperfections in rates, which should be attended to by those concerned. In the western part of the province, we purpose trying to lay before the Railway Commission a series of what we consider unfair rates, and to endeavor to have them arranged on a more equitable basis. We are largely shut out of the west beyond Winnipeg, and we think that trade is ours by right. But to obtain it we will have to fight for it.

*Extract from a paper read at the last annual convention of the Ontario Fruit Growers' Association.

Black Raspberries

Big Money now for the man who grows the

"FARMER"

the largest and most prolific improved Black Cap known. Bushes hardy, quick growing, very heavy croppers from first year.

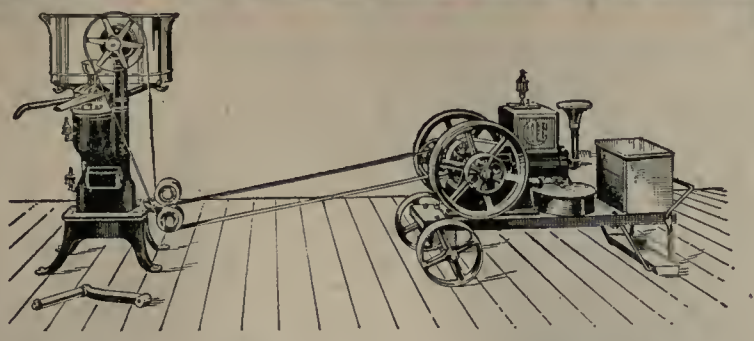
Fruit early, extra large, firm, good shippers delightful flavor. Bring the highest price

We are offering for early Spring delivery, selected plants, our own growing.

Per 1,000, $15.00. Per 100, $2.00

Order now.

ROBERT LOWREY, St. Davids, Ont.



Cream Separator Savings

AN I H C cream separator saves money for you in more ways than most people know. It saves cream because it skims practically all the butter fat out of the milk. It saves on the feed bills. Calves and pigs thrive on the sweet, warm skim milk that comes fresh from the separator. It saves fertility. The dairyman who feeds the skim milk to animals parts with a very small amount of fertility. The man who sells whole milk loses close to $4.80 per cow per year in fertilizing matter. These three savings, while not all that a cream separator makes, are important enough to warrant the most thoughtful consideration.

I H C Cream Separators

Dairymaid and Bluebell

are also furnished as complete power outfits, as illustrated above. The engine is a one-horse power, back geared, hopper-cooled, I H C engine which can be detached and used to run any small machine. The separators are built for long life and skimming efficiency. They have heavy phosphor bronze bushings for bearings; a never-failing splash oiling system; trouble proof bowl spindle bearings; dirt and milk proof spiral gears which are easily accessible for cleaning. There are four convenient sizes of each style. Ask the I H C local agents who handle these machines for demonstration. Get a catalogue and full information from them, or, write the nearest branch house.

International Harvester Company of Canada, Ltd

BRANCH HOUSES

At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

New Sweet Peas High Grade Seeds

Successful Gardeners everywhere depend on **Dupuy & Ferguson's High Grade Seeds** to produce the finest vegetables and the most beautiful flowers. **63 First Prizes** were awarded at the Montreal Horticultural Exhibition, Sept., 1912, to Mr. F. S. Watson, on products grown from seeds supplied by us.

COLLECTION A.---TWELVE SPLENDID EXHIBITION VARIETIES

White Spencer, King Edward Spencer, Otelio Spencer, Florence Morse Spencer, George Herbert Spencer, Helen Lewis, Mrs. Hugh Dickson, Primrose Spencer, Marie Corelli, Countess Spencer, Florence Nightingale, Asta Ohn. Price, 1 pkt., each, $1.25.

COLLECTION B.---SIX SPLENDID EXHIBITION VARIETIES

Countess Spencer, White Spencer, King Edward Spencer, Helen Lewis, Florence Nightingale, Asta Ohn. Price, 1 pkt., each, 65c.

THE GRAND NEW HARDY ROSE CLIMBING AMERICAN BEAUTY

The Rose "We-All" Have Been Waiting For

This wonderful new Rose is a cross between the "Queen" of all Roses, American Beauty, and an unnamed seedling. Color a rosy crimson similar to its parent (the most loved of all Roses) and with the same exquisite fragrance, a rarity indeed in hardy climbing Roses. The plant is of very strong habit and growth, making shoots eight to ten feet in a season, flowers are of large size and produced in great profusion throughout the season---unlike the bush Rose, "American Beauty," it is as hardy as an oak. Supply limited. Extra Size Plants, each, $1.50; per doz., $12.50.

Write for our New Illustrated Catalogue replete with choicest strain of VEGETABLE and FLOWER SEEDS

DUPUY & FERGUSON 38 Jacques Cartier Square, Montreal

Hemingway's "London Purple" Co., Ld.

17 Battery Place, NEW YORK — 15 Seething Lane, LONDON, E.C.

Cables: "Nevritique," London or New York
Works: Stratford, London, E.

For over 35 years we have been doing very large business in insecticides throughout the U.S.A., Australia, New Zealand, West Indies, Egypt, etc., etc.

"LONDON PURPLE," Trade Mark, our original product is still one of the most effective of all insecticides. Millions of pounds have been used. Many who have used it in 1879 are using to this day. It has one disadvantage, it is so active that occasionally a few leaves may be scorched if used without considerable dilution or carefully distributing over a wide area, *but a few leaves in a large orchard or potato farm are of very little account compared with the benefit derived, and this slight danger can be obviated by adding ¼ lb. of slacked lime to every 1 lb. of "London Purple" used.*

ANALYSIS:

Arsenic Lime Compounds ...	70%
Dye stuffs and inert matter ...	30%

Use 1 lb. to a barrel of water.

Hemingway's Pure Lead Arsenate Pulp

The best ever made—absolutely pure.

ANALYSIS:

Arsenic Oxide	15%
Lead Oxide	32%
Moisture	50%
Soluble Arsenic, under	½%

It thins down very easily in the spray tank.

It is the most neutral of all makes. Its adhesion is perfect.

Its composition absolutely consistent, owing to the great care taken in manfacture.

Careful orchardists use less of our make than recommended quantities and still get the best results.

Please write for further information.

"Bumper" Barley Crops

are easily obtained by the intelligent application and use of Nitrate.

CHILEAN

Nitrate of Soda

gives plants a good start, carries them along to proper development and maturity, and provides a "bumper crop."

Clean—uniform—odorless—cheap. Its results are astonishing and convincing. 100% immediately available.

Be sure and write today for our booklet—FREE.

"Fertilizers for Corn and Cereals."

Dr. WILLIAM S. MYERS
Director Chilean Nitrate Propaganda
17 Madison Ave., New York
No Branch Offices

In a general way, we have a great deal to be thankful for. While freight trains do run very slow, still in time we get our goods through to their destination. At times we find when we send cars to the west, even though we ship a car a day, they often arrive four, five, or six at a time. It always causes a loss to the shipper when so much is thrown on the market at one time. The same thing happens in Toronto, as somehow we are unable to get prompt delivery to the fruit market. The same applies to Montreal. We hope that something will be done in the near future to put the transportation business on a better basis not only as regards a more prompt delivery at terminals, but a better car service as well.

Shady Highways

E. B. Luke, Montreal Que.

It is interesting and in keeping with the times to read in the Metropolitan dailies, articles under such headings as "An Automobile Road from Montreal to Vancouver" or "To Invite Canada to Good Roads Conference to be Held in London, June, 1913." The provincial government of Quebec has guaranteed the municipalities of the province of Quebec the sum of ten million dollars to be expended on her highways. At the annual meeting of the Canadian Forestry Convention, a resolution was adopted favoring a national highway from the Atlantic to the Pacific.

Thus we see that the good roads movement is becoming world-wide. The only wonder is that all civilized countries, especially those on this continent did not wake up to its importance earlier. I regret, however, that in the movement we hear nothing about beautifying our highways; nothing about beautiful roads or shady avenues. No sane man would spend money grading, terracing, or building driveways in his home grounds and stop there; for the scheme would not, could not, be complete nor its object attained without the planting of trees and shrubs for ornamentation.

Our city governments nowadays no sooner open up new streets than they lay pipes and wires, build proper sidewalks and plant shade trees. Park Boards and horticultural societies are doing a big work, and doing it well, for the cities and towns, but why is the work of beautifying not extended into the country? The expense could not stand in the way because it would not be heavy, for young seedlings could be procured if necessary, and at a low rate from nurserymen. Then, too, trees protect a road and reduce the expense of its upkeep. In short, to my mind the beautifying of the country roads would do its share towards not only arresting the growth of the cities at the expense of the country, but would actually in time do its part in reversing that movement and in bringing city people back to the country.

Good roads are an absolute necessity a municipal, provincial, and national asset. They are an index to the progressive or unprogressive spirit of a community for "by their roads ye shall know them," but a well-made road is not a good road unless it is a shady highway as well. It is therefore a duty we owe to the country and to posterity to see to it that those having the authority to make our road laws or road expenditure, make ample provision for beautifying them as well. But why wait for this, for it is, after all, largely a matter for individual effort. A few leading spirits in each locality can start the movement and the rest must fall in line, if only to save their self-respect.

Finish This Story

A WORKMAN in an I H C wagon factory was explaining the various stages of wagon construction to an interested visitor. He picked up two pieces of long leaf yellow pine, which to all appearances were sawed from the same board, and asked the visitor to notice the difference in the weight of the two pieces. The lighter piece, he explained, was kiln-dried. The heavier piece was air-dried and more thoroughly seasoned. It had retained the resinous sap which adds strength and toughness, while in the kiln-dried piece of lumber this sap had been drawn out by the too rapid application of heat.

Every Stick of Lumber Used in IHC Wagons is Carefully Selected, Air-Dried Stock

Here was something to think about. The visitor asked for a test as to the relative strength of the two pieces of wood. The air-dried piece held up under nearly double the weight under which the kiln-dried piece of lumber broke. The workman explained how the comparative life of air-dried and kiln-dried lumber has about as great a difference.

To the eye there was no difference between these two pieces of lumber, but when put to the test there was a vast difference. So it is throughout the construction of I H C wagons—**Petrolia,** and **Chatham.** They are built for real strength, light draft, and satisfactory service.

After seeing the care used in the construction of every part of an I H C wagon, the visitor asked: "Why don't you let people know of the great care used in selecting material and in constructing I H C wagons?"

This is what we have been trying to do, but we cannot tell it all in one short advertisement. I H C local agents handle the wagons best suited to your work. See them for literature and full information, or write the nearest branch house.

International Harvester Company of Canada, Ltd

EASTERN BRANCH HOUSES

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa; Ont.; St. Jobo, N. B.; Quebec, P. Q. Built at Chatham and Petrolia, Ont.

Why Don't You Plant EWING'S Reliable Seeds

What's the use of giving your land, your time and your work for a season for anything less than the *best* crops? Ewing's Reliable Seeds have proved, for more than forty seasons, favorable and unfavorable, that they will produce the highest crops of the best quality. Ask your neighbors who plant Ewing's Seeds all about them. Plant them yourself this spring and get the full reward for your work. Your dealer should have Ewing's Reliable Seeds, but if he hasn't, write for our illustrated catalogue and order from us direct.

Wm. Ewing & Co., Seedsmen

McGill St., Montreal.

23

SPECIAL GUARANTEED

Lime-Sulphur Hydrometer

Both specific gravity and Beaume readings; submitted to Mr. Caesar O. A. C., Guelph, and reported "quite satisfactory."

Sent Postpaid on receipt of 80 cts.

PARKE & PARKE Wholesale Druggists HAMILTON, ONT.

BEZZO'S FAMOUS PRIZE ASTERS

Prizes at New York State Fair 1910-11; Berlin Horticultural Society 1911-12; Canadian National Exhibition, Toronto 1912.

Vick's Violet King, Rose King, Royal White, Royal Lavender, Royal Purple, Vick's Rochester, a lavender pink, Vick's Peerless Pink, Salmon Pink, small flower but very pretty; Improved Hohenzellern in white or rose; Improved Crego Pink; Late Branching White, Rose, Pink, Lavender; Early Branching White, Rose, Crimson, Lavender, Queen of the Market (very early) in white or pink. These are very truly the aristocrats of the Astor family. All plants sent by express (unless otherwise arranged) and guaranteed to arrive in good condition. Price $1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders of $2.00 and over. Special prices to Horticultural Societies. All plants cold-frame (not hot-bed) grown, and with favorable weather will be ready last week in May.

C. MORTIMER BEZZO, BERLIN, ONTARIO

Big Chicks

with robust constitutions, full of vigor, are not secured by careless methods of management. Worth-while chickens are the kind that have developed steadily from the day they tumbled out of the shell.

Grow that kind this season and make bigger profits. Feed

Pratts Baby Chick Food to save them and give the vigorous start. Use

Pratts White Diarrhea Remedy to prevent weakening and death from bowel troubles. Give

Pratts Poultry Regulator to keep them well, with hearty appetites and perfect digestion. Dust them frequently with

Pratts Powdered Lice Killer to insure freedom from troublesome vermin.

That's the whole story. Easy, isn't it!

"Your money back if it fails."

Our products are sold by dealers everywhere, or

PRATT FOOD COMPANY OF CANADA LIMITED, TORONTO, ONT

Prices:
Chick Food, 25c up
White Diar. Rem., 25c, 50c
Regulator, 25c, 50c, $1
Lice Killer, 25c, 50c

Pratt's 160-page Poultry Book, 10c by mail.

International Stock Food
Is Equally Good for Cows—Horses—Pigs

This great tonic is for all live stock—to make cows give more milk—to keep the working horses in prima condition—to fatten pigs and keep the "winter" pigs strong and vigorous.

We guarantee that it will make your colts, calves, pigs, sheats and lambs grow rapidly, and keep them healthy and thriving all the time.

Tell us the number of head of stock you own and we will send you a copy of our $3,000 Stock Book—Free.

Here's another farmer who finds it pays to feed International Stock Food:—

"Rockport, West Co., N.B., Jan. 13, 1913.

"INTERNATIONAL STOCK FOOD is all O.K. I average a package every two months for my stock—having three horses, four cows, two calves, four steers and sheep. Careful tests show that my milking cows have given 50 per cent. more milk since feeding International Stock Food. It is also fine for calves."

BEVERLY TOWER.

International Stock Food, Poultry Food, and Veterinary preparations are for sale by dealers everywhere. If you cannot obtain our goods in your town write us direct. (81)

INTERNATIONAL STOCK FOOD CO., LIMITED . . . . . Toronto

Planet Jr

No. 76 Pivot-wheel Riding Cultivator, Plow, Furrower, and Ridger is a wonder in cultivating corn, potatoes, and similar crops. It is light in draft, simple and strong in construction, and comfortable to ride upon. Either regular or spring-trip standards may be used. Can be equipped with roller-bearings, spring-trip standards, and discs. It works rows 28 to 44 inches, and cultivates corn until 5 feet high.

FREE An instructive 64-page illustrated catalogue

Describes 55 latest tools including one- and two-horse cultivators, wheel-hoes, seeders, harrows, etc.

Write for it today!

S L ALLEN & CO Box 1106G Philadelphia

Write for name of our nearest agency.

The Cooperative Purchasing of Supplies*

W. J. Kerr, Woodroff, Ont.

The subject of cooperation is engaging the attention of persons, corporations, and nations. The vegetable growers throughout America are forming many cooperative associations. Large corporations and companies are cooperating with each other to lessen the cost of production and teach each other the best and most profitable methods. Nations are cooperating with each other for their mutual protection and welfare.. Yet we know but a small part of the benefits to be derived from such banding together.

The market gardeners of the Ottawa district a few years ago were strugglin along in a kind of a way. A few were making a little money. Nearly all were more or less suspicious of each other. None of them were enjoying life or making the success they might. Finally a branch of the Ontario Vegetable Growers' Association was formed, but the spirit of cooperation did not seem to get hold of the members for the first four years, and in the meantime the branch came very nearly dying. In the winter of 1911 our association bought a car of berry boxes, baskets and other supplies, and it also bought in Denmark a few seeds, as a trial. This venture proved successful, and resulted in a saving of about two hundred dollars for our members on the car of baskets alone. The seed purchased direct from the grower in Denmark cost us only about half what we had been in the habit of paying, and the quality was much superior to anything we had ever had before.

This cooperative purchasing of supplies built up our branch. It created a spirit of mutual confidence that has been of untold benefit to us. Our branch has taken on new life, our members have increased our finances have increased, and we will have a nice little surplus at the end of the year. I consider the purchase of supplies, cooperatively, by our association has been the chief factor in working this wonderful change.

To give you an idea of the saving we have made in the cost of seeds, I will quote from this season's prices as offered by two of the largest growers of seeds in the world. One quotes Nantes carrot seed at thirty cents a pound, lettuce at from twenty-five to thirty cents a pound, and a few other lines equally low. Another, one of the largest growers in the world sold us last year, Snowball cauliflower at sixty two cents an ounce, Chanteney carrot a one dollar ten cents a pound, Danish winter cabbage at seventy-five cents a pound Glory of Enkhuizen cabbage at seventy five cents a pound, lettuce at forty to fifty cents a pound, Moss Curled parsley a thirty-four cents a pound, Hollow Crown parsnips at fourteen cents a pound, and many other lines equally low. True, the seeds bought in the United States were no much lower in price than we can buy them at home, but we bought from the grower and got fresh goods, pure and true to type and of high germination. I estimate that by cooperative purchase of all our supplies the members of the Ottawa branch can save in original cost over $1,000, and can make from their extra crop, due to high quality seed, several thousand dollars more on the average each year.

*Extract from a paper read at the last annual convention of the Ontario Vegetable Growers' Association.

Junior Sprayer

WHAT fruit growers are looking for. High Grade Sprayer, with a perfect working, easy starting, two and a half horse power Engine. Ample power always. High pressure Pump which can always maintain 200 lbs. on the guage. Equipped with hose guaranteed by the makers to stand 600 pounds pressure. Rotary Agitator, with iron propellors.

SOLD AT PRICE ALL CAN AFFORD THEM

Send for particulars and catalog, showing our larger Power Sprayer as well as our smaller outfit.

Our COG LEVER HAND PUMPS SAVE 40 per cent. of your labor

Canada Rex Spray Co. (Limited) Brighton, Ont.

Strawberry Plants

Grown on the shore of Lake Erie cannot be excelled for vigor and productiveness, because climatic conditions here are most favorable for their proper developement. We always get a crop.

Our Improved Williams is the surest, most productive, and best shipper of all Strawberries.

We list 25 choicest kinds, selected from over 100 varieties tested.

Also Black Cap Raspberries, and Evergreens.

Catalog Free

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H. L. McConnell Grovesend, Ont.

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At the front with Superior TREES, Shrubs, Roses and Ornamentals in Variety. If you are in the market for something Pleasing and Reliable, write us for Priced Catalog.

January is bargain month for Apple and Cherry Trees at the Central Nurseries. They are dandies. No Agents. Get busy. Order quick for best results.

A. G. HULL & SON, St. Catharines, Ont.

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Success in Farming depends in large measure on the Implements used

All that's best in Farm Implements will be found in the

Massey-Harris Line

Plows, Cultivators, Disc Harrows, Drag Harrows	To Prepare the Soil.
Hoe Drills, Shoe Drills, Disc Drills, Seeders	To Plant the Seed.
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Manure Spreaders, Lime Sowers, Fertilizer Drills	To Distribute the Fertilizer.
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of Quality

Your Soil Is Alive

TO all intents and purposes, soil is alive. It breathes, works, rests; it drinks, and, most important of all, it feeds. It responds to good or bad treatment. It pays its debts, and pays with interest many times compounded. Being alive, to work it must be fed. During the non-growing seasons certain chemical changes take place which make the fertility in the soil available for the next season's crop. But this process adds no plant food to the soil. Unless plant food is added to soil on which crops are grown, unless the soil is fed, in time it starves. There is one best way to feed your soil. Stable manure, which contains all the essentials of plant life, should be spread evenly and in the proper quantity with an

I H C Manure Spreader

I H C manure spreaders—**Corn King or Cloverleaf**—are made in all styles and sizes. Sizes run from small, narrow machines for orchard and vineyard spreading, to machines of capacity for large farms. The rear axle is placed well under the box, where it carries over 70 per cent of the load, insuring plenty of tractive power at all times. Beaters are of large diameter to prevent winding. The teeth that cut and pulverize the manure are square and chisel pointed. The apron drive controls the load, insuring even spreading whether the machine is working up or down hill, or on the level. I H C spreaders have a rear axle differential, enabling them to spread evenly when turning corners.

The I H C local agent will show you all their good points, and will help you decide on the one that will do your work best. Get literature and full information from him, or, write the nearest branch house.

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At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

Strawberry Plants

After more than twenty years' experience in growing strawberries, I have found the Williams and Parson's Beauty the most productive and the best for the market. I am prepared to offer for early spring delivery, 500,000 plants of last year's growth of these two varieties. Also 250,000 plants of the following splendid kinds:

FOUNTAIN
WOLVERTON
MICHEL'S EARLY
SENATOR DUNLAP
LATE GIANT

Price for any of these varieties, $5.00 per 1,000, or 75c per 100.

I have the best varieties of Red and Black Raspberries at $10 per 1,000; $1.50 per 100.

IF INTERESTED WRITE ME

WILLIAM WALKER, Box 15, Port Burwell, Ont.

OLD FASHIONED FLOWERS

For the Garden

Send for List of

WESTLAND'S HARDY PLANTS

PAEONIES, PHLOX, IRIS, Etc.,

In many Beautiful and New Varieties.

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MALCOLM WESTLAND

TAMBLING CORNER, - LONDON, ONT.

Marketing B. C. Fruit

(*Continued from page* 103)

and its enforcement, British Columbia growers are discriminated against in favour of their foreign competitors.

Twelfth. Canning, preserving, and otherwise preparing fruit and vegetables, are as yet developed to a very limited extent in this province. In California twenty-eight million dollars' worth of fruit by-products are produced annually.

The foregoing are among the principal conditions which depressed prices last year. The fruit growers of the province expect you to deal with the situation, and recommend and follow up means of securing our markets.

FUTURE PROSPECTS

It seems pertinent for us to consider what will in all likelihood be the situation in future years. There is a general assumption that in 1913 apple and other fruit crops will be larger than in 1912.

People point to the increased acreage and the growth of the trees for proof. They forget the law of action and reaction which is always at work. The British Columbia fruit industry has always been specially subject to it. There was the large crop of eighteen hundred and ninety-eight followed by a small one in nineteen hundred and nine; a big crop in nineteen hundred and ten, with a small crop in nineteen hundred and eleven, and a bumper crop in ninteen hundred and twelve. The Okanagan shipped five hundred car loads of apples last year. In nineteen hundred and thirteen under normal conditions the crop will likely be less. Other districts and other crops under normal conditions will likely be the same. This is equally true of the country as a whole.

Practically all fruit districts had good crops last year. Many places will have a normal or average crop. The north-western States are not likely to have more than fifteen thousand cars of apples. In nineteen hundred and nine they had six thousand; in nineteen hundred and ten, fifteen thousand; in nineteen eleven, nine thousand; in nineteen hundred and twelve, twenty thousand cars are estimated.

Plums and prunes are almost certain to be a light crop in the north-western States next year; there is, generally speaking, no great need for concern about nineteen thirteen prices. Our present organizations will, however, require extension of staff and finances, to be effective.

NORMAL PRICES PREDICTED

Nineteen hundred and thirteen will be a year of at least normal prices. In meeting the situation generally, we may expect a margin of some eighteen months to make plans for our next difficult season.

The acreage in the north-western States promises in the near future some real competition. Figures collected over this territory show that in Oregon, Washington, Idaho, Montana, and British Columbia there are some three hundred and twenty thousand acres of what promises to be fairly successful orchards, of which over ninety per cent. are in apples. Of this figure under thirty thousand acres are in British Columbia. It is true, of course, that it is generally accepted that only twenty-five per cent. of apples planted will arrive at commercial bearing. At the present time only eight per cent. of the entire amount is in bearing, producing about twenty-five thousand car loads last year.

In nineteen fourteen we may expect between forty and forty-five thousand car loads of fruit in this territory, and the crop

The Importance of this Reason Book

Before talking about the Reason Booklet itself, let us first ask you a question or two:

When you buy anything of importance involving the expenditure of several hundreds or thousands of dollars, do you rely entirely on your own individual information, and go right out and buy it? Of course you don't.

In making your final decision, are you not strongly influenced by the opinions of someone who has already bought—and is satisfied?

Doesn't the fact that this or that person, company or institution of prominence has put their stamp of approval on it, by putting their money into it, carry a good deal of weight with you?

This being so, then naturally enough you will buy a greenhouse much the same way.

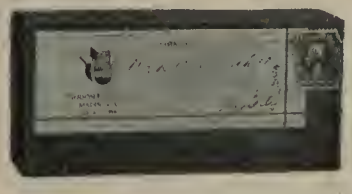
Suppose, for instance, you want to know thoroughly about the U-Bar Greenhouse, and have been wondering if there are any houses in your vicinity you could see; wouldn't a booklet giving you the names of all U-Bar owners and the character and extent of the greenhouse they own, be of interest and assistance to you?

Let us suppose still further, that you want to confirm your decision to buy a U-Bar house by seeing who some of the others are who arrived at the same decision and built; wouldn't a booklet grouping such names in a readily get-at-able way be just the thing you want?

That's why we made just such a booklet.

It's called "Reasons."

The reasons themselves are told in 93 words, right at the start—the rest is given over to a unique and interesting arrangement of the locations and owners of U-Bar houses built in the last few years. Send for this Booklet. With it we will mail you our Catalog and a section of the U-Bar itself—so you can see exactly what the U-Bar is.



The U-Bar itself is mailed to you in a green box like this.

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DIXON'S ROSES

Bloom from June till Frost

Order now to secure Best Selection of Varieties, also any Fruit, Ornamental Trees, Shrubs, Evergreens and Perennial Plants.

40 Years of PRACTICAL EXPERIENCE enables us to grow only the BEST of Everything.

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DON'T SACRIFICE!

If you have good apples to sell and you think you should get more than you are offered, do not sacrifice them. Ship them to Toronto. The Toronto market alone will require immense quantities of apples between now and spring.

We have cold storage facilities and can store your apples till a favorable price can be realized, thus protecting your interests. Write or wire us to-day.

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STRAWBERRY PLANTS
FOR SALE
Amanda, Paul Jones, Lea, King Edward, Charles I., Norwood, Arnout, Ekey, Mascot, Meteor, Twilley and all the old standards.—Herbert Raspberry and Asparagus Plants.—**Send for Price List.**
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SPECIAL GUARANTEED
Lime-Sulphur Hydrometer
Both specific gravity and Beaume readings; submitted to Mr. Caesar O. A. C., Guelph, and reported "quite satisfactory."
Sent Postpaid on receipt of 80 cts.
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MANUFACTURERS OF
POWER SPRAYERS
and a complete line of
Apple Evaporating Machinery.
Installing Power Evaporators a Specialty
When you see our
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Improved Pacific Apple Parer
in operation you will become their lasting friend. They stand out in a class by themselves.
Write for our valuable illustrated catalogue on Spraying and Evaporating.
INGERSOLL, ONT.

of apples may easily run to forty-two thousand cars.

This is equal to twenty-six million four hundred and sixty thousand boxes, or eigth million barrels, practically one-third of the entire average crop of the United States for the last seven years. If these crop predictions are correct, there is ample need for protection for us in our markets.

Economic conditions have changed. The cost of labor has increased greatly in the last five years; and so have the costs of other items of production. The exclusion of Orientals has had much to do with this. Our labor and the other items in the cost of production are higher than they are in the State of Washington. Another economic condition which affects the situation is the defective organization of our competitors. Their marketing associations were in poorer shape in nineteen hundred and twelve than in previous years, and this, in the face of large crops, inadequate holding and storing facilities, the absence of by-product factories, and unsatisfactory finacial conditions.

Okanagan Valley North, B.C.

Chas. Webster Armstrong, B.C.

Armstrong district will be keenly alert for codling worms this summer. A few were discovered last season in one or two orchards. The Provincial Fruit Pest Inspector wisely quarantined those orchards, picked and destroyed the heavy crop of fruit, but doing away it is believed with means of propogation. One of the Fruit Pest Inspectors' staff is now in the district with an efficient power sprayer to give advice and assistance on all spraying matters, especially to watch for codling worms and completely exterminate them if any are found. This is prompt, commendable action; may the programme be carried to completion. The orchard men of this district will give every assistance, for they

STRAWBERRY PLANTS
Seventeen years experience growing Strawberries for Market and Selling Plants.
Write for list of Varieties and Prices.
S. H. RITTENHOUSE, Jordan Harbor, Ont.

Southern Farm Facts
Land at $10 an acre up
Alfalfa makes 4 to 6 tons per acre; Corn 60 to 100 bu. All hay crops yield heavily. Beef and Pork produced at 3 to 4 cents per lb.—Apples pay $100 to $500 an acre; Truck crops $100 to $400; other yields in proportion.

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Mobile & Ohio R.R. or Ga. So. & Fla. Ry will help you find a home in this land of opportunity. Booklets and other facts—free.
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Horticultural Society Prize Winning Collection
of Named Field Grown Roots
15 for $1 Post Paid
Larger Roots by Express not Prepaid.
Both Equally Good.
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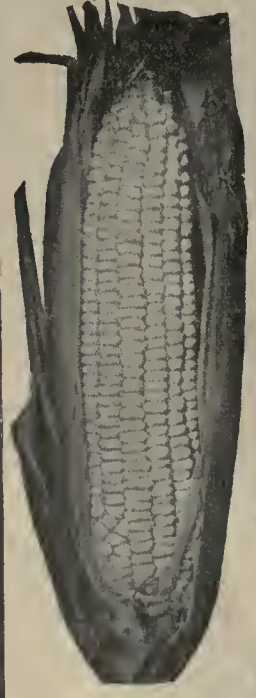
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EARLY SWEET CORN
163

OUR BEST LIST IN TEN YEARS

RENNIE'S XXX VEGETABLE SEEDS

These are extra choice, and are without exception the VERY HIGHEST IN GERMINATION and the VERY FINEST TYPES of their respective kinds that it is possible to procure on this or any other continent.

POSTPAID	LB.	¼ LB.	OZ.	PKT.
BEAN, Bush Butter	.35			.10
BEAN, Bush Green Pod	.35			.10
BEET, Globe	2.00	.75	.25	.10
CABBAGE, Early Summer	3.50	1.00	.30	.10
CABBAGE, Autumn Winter Drumhead	3.50	1.00	.30	.10
CARROT, Table	2.75	.75	.25	.10
CAULIFLOWER, Snowball		12.00	3.50	.25
CELERY, Golden Self-Blanching			3.75	.25
CORN, Early Sweet Table	.40			.10
CUCUMBER, Table	1.90	.60	.25	.10
LETTUCE, Solid Head		.75	.25	.10
MUSK MELON, Golden Green Flesh		.90	.35	.10
WATER MELON, Earliest Sweet Table		.60	.20	.10
ONION, Connecticut Yellow Globe	2.50	.75	.25	.10
ONION, Connecticut Large Red	2.50	.75	.25	.10
PEAS, Earliest Table Marrow	.40	.15		.10
PEAS, Melting Marrow	.40	.15		.10
PARSLEY, Evergreen Curled Table	2.00	.75	.25	.10
PARSNIP, Guernsey	1.50	.60	.20	.10
RADISH, Scarlet Round White Tipped	1.50	.50	.20	.10
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SQUASH, Autumn Winter Green Hubbard	1.75	.60	.20	.10
TOMATO, Earliest Round Scarlet Skin		2.00	.60	.15
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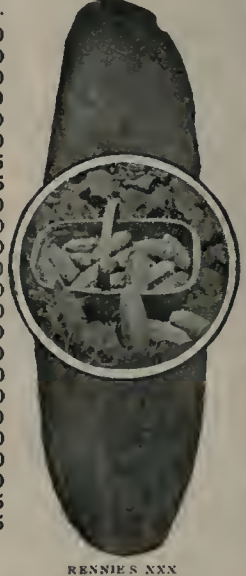
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TABLE CUCUMBER.

Write nearest address—

WM. RENNIE CO. LIMITED Toronto Winnipeg Montreal Vancouver

know that it is to their own best interests to do so. There are orchards here twenty-five to thirty years old that have never borne a wormy apple, and every effort will be used to extend this effort. If this pest is not eradicated thoroughly and promptly all Okanagan valley will be doomed to summer spraying annually, in order to raise wormless apples. This at least has been the result elsewhere. The great fruit valleys of Washington and Oregon are now spraying regularly to keep down the percentage of wormy fruit. We purpose having Okanagan continue to be the valley of wormless apples.

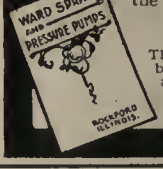
Some of our growers may doubt the wisdom of making this crisis public. The Government, however, can never supervise every apple tree. It is necessary that the growers themselves be broadly awake, and do everything they can to help. There is little use locking the door after the horse is stolen. What would the State of California have saved had pear blight when it appeared in San Joaquin valley been promptly grappled with and exterminated? What would southwestern Ontario have been to the good had the real gravity of the situation been realized when San Jose scale was first noticed three years ago, and had they faced the situation as Pres. Parker, of the Nova Scotia Fruit Growers' Association says in the January Canadian Horticulturist, the growers of the Annapolis valley are facing the infection of San Jose scale that threatens them? It may be of interest at this time to recall that San Jose scale once was present in the Okanagan valley; at Kelowna. Prompt action of the provincial government and the owner of the infected orchard eradicated the scale, and Kelowna and the whole valley has since enjoyed years of immunity May it be so with codling moth!

I like The Canadian Horticulturist very much, especially the notes and articles on perennials and flower gardens.—Annie M. Thompson, Queenshoro, Ont.

Ward Spray Pumps

When the time comes to spray, you MUST do it then or never. A few days or a week's delay may mean the loss of hundreds or even thousands of dollars. You absolutely cannot afford to take chances on a spray pump that may get out of order just at the critical time. You want the strongest, surest, most reliable pump you can get even if it does cost a few dollars more than the other kind. The name Ward on a spray pump is the mark of absolute reliability and highest efficiency. Honestly built of the best materials. Capable of high pressure to give a fine mist spray. All working parts made of brass, insuring long life to the outfit. Perfectly constructed to handle all kinds of mixtures and work right under any and all reasonable conditions.

TYPES FOR EVERY NEED—Barrel outfits, double action hand pumps and power outfits of various capacities. We can supply pumps only, or outfit complete ready for use, including tank, wagon and accessories. In the Ward line you'll find the very pump that best meets your needs.



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Sample, Dunlap, Splendid, Pocomoke

We have large quantities of Extra Strong Plants. It will pay you to write us for prices.

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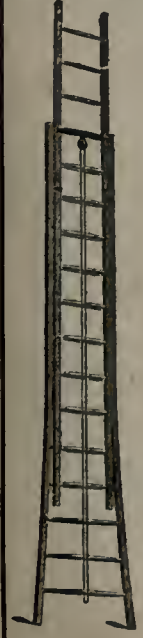

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Choice Mixed—10 for 30c.; 25 for 65c.; $2.25 per 100—postpaid.

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Childsi Mixed—10 for 60c.; 25 for $1.25; $4.25 per 100—postpaid.

Bruce's Superb Mixed, made up by ourselves from all varieties—the best—10 for 60c.; 25 for $1.35; $5.00 per 100—postpaid.

Named Varieties, any color (see catalogue) 10c. to 50c. each—postpaid.

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Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

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GRAHAM'S SEEDS
The Quality willl Insure Heavy Crops.
Our Prices will Save you Considerable Money.
Send for our Catalogue. Send for our Unexcelled Collection of FLOWER SEEDS for 50c. Send for our 50c. Collection of Specialties in VEGETABLE SEEDS. Results will delight you.
High Grade Seed Corn, Oats, Wheat, Clovers and Grasses. etc.
Graham's Royal Exhibition Sweet Peas, lb. $1.00, oz. 10c.
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Graham's Royal Exhibition Nasturtium, oz. 15c., pkt. 5c.
GRAHAM BROS.
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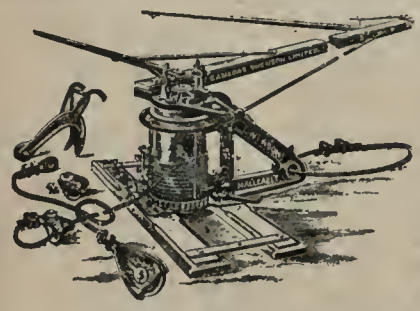
Between Bank and Lyon Sts.


How many acres can you stump this Fall?
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Items of Interest

A deputation from the British Columbia Fruit Growers' Association, consisting of President Agur and Secretary Winslow, waited on the Dominion Government recently and asked that he Canadian duty on apples be raised from thirteen to twenty-five cents, the same rate as applied by the United States. They pointed out that the western states are flooding the British Columbia markets, and asked that it be made compulsory to label fruit.

A ruling issued by the Railway Commission on March seventh ordered the railways to re-establish the arrangement formerly in effect, whereby apples were carried to concentration points for storage, inspection, or completion into carloads and reshipment, at a reduction of one-third from the local tariff rates to these concentration points.

At a meeting held recently in Toronto of the creditors of the National Land Fruit and Packing Company, which went into liquidation last December, it was decided to make an effort to continue in operation. The company has an authorized capitalization of $1,215,000.00, and a paid up capital of about $300,000.00. There are about 900 shareholders all told.

The liabilities outside of shareholders amount to about $140,000.00, with only small assets. The company has options on a large number of orchards and it is hoped that if these can be worked this year it may yet be possible to continue the company in operation.

Recent Publications

Recent books and bulletins to reach The Canadian Horticulturist, include the following:

Modern Strawberry Growing, by Albert E. Wilkinson. This is a practical manual of strawberry growing, giving details as to varieties, planting, cultivation, soils and similar topics. As the last strawberry book was issued some twenty years ago this book should fill a need. Published by Doubleday, Page & Co., Garden City, N.Y.

Cooperation in New England is a book of over two hundred pages issued by The Russell Sage Foundation. It is by James Ford, Instructor in Social Ethics, Harvard University. It deals with cooperative associations of working men and farmers. Price $1.50, postpaid; published by Survey Associates, Inc., New York.

Catalogues

Recent catalogues to reach The Canadian Horticulturist, include The Burbank Seed Book, issued by The Luther Burbank Company, San Francisco, Cal.; Bruce's Seeds, issued by John A. Bruce & Company, Limited, Hamilton; Perry's Illustrated Catalogue of Hardy Ferns, Enfield, Middlesex, Eng.; and Dreer's Wholesale Price List, issued by Henry A. Dreer, 714 Chestnut St., Philadelphia, Pa.

Canada and Sea Power, by Christopher West, published by McLelland & Goodchild, Toronto. This is a valuable and interesting book dealing with the political relations of Canada to Great Britain, and to the other Dominions of the Empire, particularly as they relate to the cost of navies, the economics of war, and the need for a curtailment in naval and military expenditures.

The Winter Injury to Fruit Buds, of The Apple and The Pear, is the title of Bulletin No. 91, issued by The Montana Agricultural College, Bozeman, Montana.

The Canadian Horticulturist

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The Benefits of Winter and Summer Pruning Compared*

By Dr. C. D. Jarvis, Conn. Agricultural College (formerly of the Guelph Agricultural College)

PRUNING is a natural process. It may be observed on both fruit and forest trees. In the struggle for existence the weaker branches, or those unfavorably located, die and drop off. An attempt, often successful, to heal the wound takes place. The modern practice of pruning is an attempt to assist nature and to improve upon her crude methods.

The objects of pruning are three in number. The primary one is to reduce the struggle for existence among the various parts of a tree so that the remaining portion may produce larger and better fruits. Pruning, therefore, is a thinning process, the beneficial effect of which may be readily demonstrated by the cutting out of about half the brush from a neglected apple tree. The process includes the removal of dead or diseased parts as well as of superfluous living branches.

The second recognized object of pruning is to control and modify the shape of trees. Pruning, therefore, is a training process. It commences when the tree is in the nursery now and may continue throughout its life.

Finally, pruning is practised on account of its effect upon the formation of fruit-buds and leaf-buds. The physiological processes concerned in this are not well understood, but it is well known that pruning during the growing season produces an entirely different effect from pruning during the dormant season. A heavy pruning of the top during the winter tends to produce wood, because the same amount of root energy is concentrated on a smaller top. The pruning of the root has the opposite effect, tending to lessen the production of wood, because the same amount of top receives a smaller supply of the stored up energy of the roots and a smaller supply of the soil water with its plant food constituents.

THE IDEAL IN PRUNING

In the pruning of the apple tree there are two distinct styles or ideals, the central leader type and the open centre type, each with its corps of adherents. There are many supporters of the central leader type among the western growers, and they claim that a tree pruned in this form makes a stronger structure and is not so likely to be broken down by wind and heavy crops of fruit. This is a strong argument and cannot be ignored. A tree of this type, however, is inclined to grow too high and completely shuts out the light from the centre of the tree.

The open-centre type of tree is the one most commonly found in the commercial orchards of the east. For New England, where the maximum amount of sunshine is necessary to develop fruit of high color, this seems to be the most desirable type. If carefully grown and properly trained, and if the trees are not allowed to overbear, there is not likely to be much trouble from the breaking of the branches.

In order to develop a strong open-centre habit, we must have a good nursery tree to start with. We hear a great deal nowadays about the desirability of growing low-headed trees, and I am a strong advocate of such practice, but I do not believe in heading them so low that there is no room for the proper distribution of the main or scaffold limbs of the tree.

Many nurserymen are making a mistake in "rubbing" their trees too high; by this I mean that all the buds and shoots are rubbed off from the yearling tree to a point six or eight inches below the point where the tree is headed in. If the practice is to head a tree thirty inches from the ground, the "rubbing" should not extend more than twelve inches from the ground, leaving a space of eighteen inches for the proper distribution of the scaffold limbs of which there should be from three to five. These should be fairly evenly spaced along the central axis and no more than one should be allowed to develop at the same point.

An apple tree is a wonderfully tractable object when handled properly. The man who follows the ordinary practice of severely pruning down the dormant season only, is going to have trouble for the more we prune at this season of the year the more persistent the tree becomes. To encourage the development of the weaker growing branches and to check the persistence of the stronger ones, it is necessary to do some pruning during the growing season. This subject will be discussed more fully under the head of Summer Pruning.

The Central Leader Type of Apple Tree

*An address delivered before the Massachusetts Fruit Growers' Association.

A Twelve-Year-Old Apple Tree Never Pruned Since Planted

I believe that in the past we have grown our trees too fast and have pruned them a great deal too much. To develop a strong fruit-bearing structure, a tree should not be unduly forced. It may be observed that with trees that have made a normal growth the branches are more tapering and more rigid than those on rapidly grown trees. The excessive growth is frequently due to liberal fertilization and cultivation, but is just as often due to severe winter pruning.

During the past six years I have had under observation a young orchard that has been developed under various systems of pruning, and I am forced to state that the best shaped trees in the orchard to-day are those that have not been pruned since they were planted. Now, we should not deduce from this that under all conditions a young tree should not be pruned. These trees were Baldwin and McIntosh, and were grown under the grass mulch system. I was fortunate enough to find another young orchard that appeared to be about twelve years of age and composed of Baldwins and Spies. These trees had not been pruned since they were planted. They had been under cultivation part of the time and in grass part of the time. The Baldwins were in bearing, but the Spies had evidently not started to bear. The Baldwin trees were fine shaped specimens, but could have been improved by a moderate pruning. The Spy trees were unsightly specimens, and their tops presented a broom-like appearance.

It is safe to say that some varieties would be better left unpruned until they reach the bearing age, and that others should have a moderate amount of pruning, and that a large part of this pruning should be done during the growing season. The character of the soil, of course, will exert considerable influence upon the behaviour of a growing tree. Trees grown on light soil require less pruning than those grown on heavy soil. Drainage, also, exerts considerable influence upon the behavior of a tree, and the training of a tree on a well-drained soil is an easier proposition than that of training one on land that remains wet late in the spring.

SUMMER PRUNING

Summer pruning, as contrasted with the regular practice, is the pruning of trees while in foliage. Its influence upon the tree in many respects is opposite to winter pruning. The latter, as mentioned before, stimulates wood growth, while the former tends to lessen wood growth. As a rule, any practice that checks wood growth tends to induce fruitfulness. Growers have taken advantage of this fact for many years. In England the result is attained by root-pruning. The method consists in digging a trench around the tree at some considerable distance and severing some of the roots. This interferes with the food supply and necessarily reduces growth. In the famous Ozark apple region of Missouri and Arkansas the same result is attained by ringing or girdling the trunk or main branches of the tree, thus checking the downward flow of sap. The roots in this way are partially starved and are, therefore, unable to induce a strong wood growth the following season. The work is done during the growing season, and, as a result, the wound soon heals over. The growers in the Pacific Coast region practice summer pruning to check wood growth. A complete or partial defoliation by insects, disease, or spraying injury during the early summer seems to have the same effect.

Just why the checking of wood growth should induce the formation of fruit buds and how it exerts this influence is not well understood. The theory has been advanced that there is some inherent tendency on the part of the tree to reproduce itself before it dies and that when anything interferes with the natural processes the tree prepares for death. This is not a satisfactory explanation, and it is hoped that the physiologists may be able to throw some light on the subject in the near future.

(To be continued.)

A Balanced Ration for Peach Trees

Wm. Armstrong, Niagara-on-the-Lake

As a balanced ration for peach trees on sandy soil I give a light annual dressing of good manure, left undisturbed over the roots and applied during late December or January in each year. This is supplemented with the following home mixed commercial fertilizers, applied immediately after mixing, about May first in each year, and scattered carefully and evenly around each tree by hand:

Mix in your wagon box on the barn floor, twenty-five per cent. pure fine ground bone meal and five per cent. fine ground sulphur together first. Add forty-five per cent. muriate of potash, fifteen per cent. Thomas Phosphate Powder, and ten per cent. coarse salt.

The quantity for each tree is as follows: Infant tree from the nursery row, one-half pound each; one year old, three-quarters pound; two years old, one and one-half pounds; three years old, two three pounds; five years old, four pounds.

Varieties of Gooseberries

W. T. Macoun, C.E.F., Ottawa

As the best varieties of gooseberries for planting in western Canada, I should recommend either the Pearl or Downing. If a red skinned gooseberry is desired, either the Josselyn or the Red Jacket would be a good variety. I should suggest planting gooseberries in the proportion of fifteen hundred Downing or Pearl and five hundred Red Jacket.

The English varieties are very subject to mildew, and although this can be controlled in part by spraying, it is not entirely satisfactory. I believe the American varieties would off-set any advantage in price there might be in favor of the English sorts in this country.

The Planting of Strawberries

W. A. Dier, Ottawa, Ont.

Any good garden soil will grow good strawberries, but the selection of varieties is of the greatest importance, and a chance selection is more than likely to end in failure. The soil best suited for the strawberry, that is, the soil that will grow successfully the largest number of varieties, is a deep, rich sandy loam. A light sand or heavy clay may, with very little expense, be brought into a condition that will produce abundant crops. Some varieties thrive best in a soil in which clay predominates, while others do best in a light, rich, sandy soil. A deep soil, whether it be naturally light or heavy, is one of the requisites demanded by the strawberry. If the soil is naturally wet, it will require under-draining.

The preparation of the soil is of the utmost importance. In digging, care should be taken to go to the full depth of the spade or fork, throwing the soil ahead six or eight inches. See that it is thoroughly pulverized, and every lump broken up, as the roots of a plant cannot penetrate a hard lump of soil. The better the soil is broken up, the better the chance for the root. Then, also, if the soil is lumpy it cannot retain moisture, and the plants suffer, whereas if the soil has been thoroughly broken up it will remain moist even through a very considerable drought.

PREPARATION OF THE BEDS

In preparing my beds, I dig them twice. The manure is dug in the first time and in the second digging I make sure that there are no lumps of either manure or soil, and endeavour to more thoroughly incorporate the manure with the soil than is possible with one digging. The second digging is not labor lost; it is, in my mind, absolutely necessary if the best results are expected.

The manure should be well rotted. If not, great difficulty will be experienced in keeping down weeds and grass, and, besides this, the straw in fresh or half-rotted manure, when dug or plowed in, is one of the greatest causes of failure. It does not rot for some time after being placed in the soil, and as it holds the soil particles apart, the hot dry air penetrates deeply soon drying it out to the detriment or probable loss of many plants. The question of soil preparation is old, and to some it may seem quite unnecessary to mention it at all, but one sees on every side, every spring, people digging or plowing strawy manure, fresh or half rotted, into a lumpy soil, and, therefore, I feel that I should mention it. In a wet season the ill-effects of straw in the soil are of course less noticeable, but as the average growing season is dry, the safer plan is to use only well rotted manure.

FERTILIZERS

As a rule, unless the soil is very poor, or very rich, a dressing of about three inches of well rotted manure plowed or dug in, and a moderate application of bone meal, harrowed or raked in, is sufficient fertilizer in the spring before planting. Later on, in the early fall, a good top dresing of hardwood ashes is most valuable. The manure furnishes humus, nitrogen and some potash; the bone supplies nitrogen and phosphoric acid; and the ashes potash, phosphoric acid and lime. Beds supplied with this top-dressing of ashes, produce fruits of the finest possible flavor and color. If ashes are not procurable, muriate of potash may be used.

HOW TO PLANT

The situation of a strawberry bed should be open and airy; they will not tolerate shade. Early spring is the usual time of planting and for commercial growers it is undoubtedly the only time; but for the man who grows for his own use and incidentally for exhibition, and who wishes to obtain the greatest amount of the finest fruit, with the least amount of labor, the annual system is the best.

There are three methods of culture, the matted row, the narrow row and the annual system. The first mentioned is for commercial growers only, and need not be dealt with here. The narrow row system is as follows: The plants are set out in rows thirty to thirty-six inches apart, with the plants twelve to eighteen inches apart in the row. They should be well cultivated, and the top inch or so of soil kept loose right up to the plant, in order to conserve the moisture in the soil. When the plants have become well established in June or early in July, three or four runners from each plant are placed carefully about six inches from the centre of the row on each side, and between the plants in the row. Two plants only are allowed to each runner, care being taken that they don't crowd each other, four to six inches apart being about right. It is good policy when possible to assist these little plants to take root.

As soon as the small white rootlets are visible, they should be placed where they are to be left, and kept in place by a small stone or a little earth. When the row has been formed, it is advisable to religiously keep off all runners. It pays to do it. The energy of the plant is thereby turned in another direction, that of forming new crowns and fruiting buds. Thorough cultivation and hand hoeing around each plant all summer is imperative. The best time to annihiliate weeds is when they are so small as to be invisible. The constant stirring of the surface of the soil will accomplish this, and the time necesasry to do it is very small compared with what would be required were the weeds to get a start. If they get a start their removal from the ground disturbs the plants, keeping them back; and besides valuable nourishment has been taken away by the weeds, all of which is needed for the plants.

We have found motor goggles a great help in protecting the eyes from the spraying solution while spraying trees. —Alfred Chaplin, Golden Acres, Rougemont, Que.

Fallawaters, planted Twelve Years in the Orchard of W. H. Gibson, Newcastle, Ont. Promise of Second Good Crop.

*Extract from an address delivered at the last annual meeting of the Ontario Fruit Growers' Association.

Cost of Spraying

R. S. Duncan, B.S.A., Port Hope Ont.

Herewith is given a tabulated statement of the cost of spraying the demonstration orchards in Northumberland and Durham counties during 1911 and 1912. All calculations are based on the valuation of four men at one dollar fifty cents each a day and a team at one dollar fifty cents a day. Lime-sulphur is valued at twenty cents a gallon and arsenate of lead at thirteen cents a pound in 1911 and ten cents a pound in 1912.

The cost of spraying the apple orchard, including labor and material, varies, according to the figures given, from thirty-nine to fifty-five cents a tree.

COST OF SPRAYING

Orchard	Year	FIRST SPRAYING					SECOND SPRAYING					THIRD SPRAYING					Tl. cost per tree
		Cost of labor	Material Lime Sulphur	Material Arsenate of Lead	Cost of spray	Applied per tree	Cost per tree	Cost of labor	Material Lime Sulphur	Material Arsenate of Lead	Cost of spray	Applied per tree	Cost per tree	Cost of labor	Material Lime Sulphur	Material Arsenate of Lead	Cost of spray	Applied per tree	Cost per tree	
F. W. McConnell,	1911	$10 60	77 gals.		$15 40	7 gals.	21.5c	$8.25	17½gals.	31 lbs.	$7.50	5 gals.	13.1c	$12.00	24 gals.	49 lbs.	$11.17	8 gals.	19 3c	53.9c
Colborne, 117 trees	1912	7.50	72 gals.		14.40	6½gals.	18.7c	6.00	25½gals.	46 lbs.	9.70	6½gals.	13.4c	9.00	33½gals.	77 lbs.	14.35	11 gals.	19.9c	52 0c
W. G. Noble,	1911	6.75	60 gals		12.00	4½gals.	13.5c	7.50	18 gals.	32½lbs.	7.83	5 gals.	11.5c	11.25	24½gals.	50 lbs.	11 40	7½gals.	16.7c	41.7c
Port Hope, 153 trees	1912	8 25	62 gals.	30lbs.	15 40	5 gals.	17.5c	6.75	19 gals.	48 lbs.	8.63	4⅝gals.	11 4c	6.75	23 gals.	57 lbs.	10.30	6½gals.	12.6c	41.5c
N. Nickoll.	1911	4.50	40 gals.		8.00	5 gals.	15.6c	7.50	18 gals.	32 lbs.	7.76	8 gals.	18.0c	9.00	19 gals.	38½lbs.	8.81	9½gals	22.2c	55.8c
Welcome, 72 trees	1912	4.50	38 gals.	19lbs.	9 50	5.8 gals.	19.4c	3.75	12½gals.	25 lbs.	5.10	6 gals.	12.3c	4.50	11½gals.	31 lbs.	5.40	6½gals.	13.7c	45.4c
J. Stanley,	1911	6.00	27 gals.		5.40	5 gals.	16c	4.50	7 gals.	12 lbs.	3.03	3.4 gals.	10.6c	6.00	11½gals.	24 lbs.	5.42	6.7 gals	16.0c	42.6c
Bowmanville, 71 trees	1912	Railroad surveyed through orchard.																		
W. H. Gibson, Newcastle, 146 trees	1912	7 50	61 gals	28lbs.	15.00	4½gals.	15.4c	7.50	20½gals	54 lbs.	9.50	5 gals.	11.6c	8.25	23 gals.	57 lbs.	10.30	6 gals	12.7c	39.0c

The cost of spraying the apple orchard, including labor and material, varies, according to the above figures, from thirty-nine cents to fifty-five cents a tree.

SUMMARY OF SPRAYING RULES

From our experienice along the north shore of Lake Ontario the following sprayings are recommended: First, just before or as the leaf buds are bursting, spray with lime-sulphur, commercial strength, one to ten. This controls San Jose Scale, oyster shell bark louse, and blister mite; second, just before the blossoms burst or as pink begins to show in the leaves, use lime-sulphur, one to thirty-five commercial strength, and add two pounds arsenate of lead to forty gallons of mixture. This is to control bud moths, feeding caterpillars, case bearers, canker worms, and apple scab; third, immediately after the blossoms fall, and before the calyx cup closes, use lime-sulphur, commercial strength, one to forty, with two pounds arsenate of lead added to forty gallons of mixture. This controls codling worms, plum curculio, and apple scab.

In damp seasons it might be advisable to spray a fourth time two weeks later with the same mixture as given for the third spraying.

The Influence of Bees in Orchards

W. White, Brantford, Ont.

Every fruit grower realizes the importance of good methods of cultivation in the orchard. It is doubtful, however, whether he appreciates the fact that in spite of all his improved methods his yearly income would be reduced to a minimum were it not for the labors of the hive-bee. He is, indeed, greatly indebted to the beekeeping fraternity, almost entirely dependent upon them, in fact, for his yearly crops. Prof. J. W. Crow, dealt with this phase of fruit-growing in a deeply interesting address entitled "The Influence of Bees in the Orchard," delivered at the recent Agriculture Short Course at the Ontario Agicultual College, Guelph.

In his opening remarks he stated that at a certain point, the two lines of agriculture, fruit-growing and beekeeping, meet, forming a bond of mutual interdependence. In its search for nectar and pollen, the bee forms an essential agent in the fertilization of tree-fruit bloom and of nearly all bush fruits.

Fruit pollen, being heavy and more or less sticky, is not carried by the wind to any extent. Although a few wild native insects may assist in the pollinating process, fruit growers are dependent almost entirely upon the hive or honey-bee. In the case of the apple, wind fertilization is practically negligible. Under favorable circumstances, this latter agency may be responsible for from five to ten per cent. of the number of blooms fertilized. Prof Crow remarked that he knew of a number of cases in which barren orchards had been brought into bearing in consequence of the introduction of colonies of bees to the neighborhoods in which the orchards were situated. It was true that bees might possibly be responsible to some extent for the transmission of bacterial disease of bloom. The gummy exudate material, laden with germs, was fed upon by bees, and in this way the bacteria were carried away by the bees. This, however, should not be held to be the fault of the bees. It was the duty of the fruit growers to cut out the diseased or blighted portions of the trees, and so destroy the sources of infection.

Apple scab was usually found on the smaller half of a deformed fruit, because that side was weaker and incapable of withstanding disease attacks. The malformation of the apple was due to imperfect fertilization. A perfectly, pollinated apple was better nourished, was larger, and proved more resistant to disease. Prof. Crow described an experiment undertaken by him. Selecting fifty clutches of blossom, he cut them down to one blossom apiece, thus leaving fifty single blossoms. From each of these single blossoms he cut out four of the five pistils. He selected three other batches of blossoms, thinning the individual clusters down to single blossoms in the same way; but one batch he treated by cutting out three of the five pistils, the next, by cutting out two pistils, and the last batch, by cutting out only one pistil. All the blossoms in the four batches were pollenized at the same time and by the same variety. In the case of the blossoms with only one pistil remaining, the fruit all dropped at an early stage. Not an apple arrived at maturity. In the lot containing two pistils to each bloom, only two apples developed. In the two remaining cases, nearly the whole of the fruit developed. These results proved the importance of thorough pollination. As a pollination agent, the honey bee was by far the most effective.

Asking the beekeepers present how many colonies of bees were required for an eight-acre orchard, Prof. Crow elicited the reply from Dr. Burton N. Gates, Ph.D., of the Massachusetts Agricultural College, Amherst, Mass., that at least one colony was considered to be necessary for the complete pollination of fifty trees. Mr. Harkness, of Irena, Ont., considered this proportion insufficient.

A Talk on Perennial Borders

F. E. Buck, B.S.A., Central Experimental Farm, Ottawa

THE perennial border" is a phase which has been coined, as far as can be ascertained, within recent years. It is generally used to denote any type of flower border which contains a large number of perennial flowers. The term "herbaceous border" is practically synonymous with it, and is still used. The first term is preferable because for those borders which contain flowering shrubs as well as the herbaceous plants the term "herbaceous border" is much less exact.

ORIGIN AND HISTORY

We get some inkling that perennial borders were not unknown to our ancestors of the age of Elizabeth from the literature of the period, and especially from Sir Francis Bacon's "Essay on Gardens." In brief their history might be dismissed by saying that they are neither of very ancient nor of quite modern origin. It may be interesting to note, however, that during the nineteenth century three types of residences almost unknown until then became very plentiful. These were the suburban villa, the city man's summer house, and the city mansion with its formal garden. These types of architecture more than all others need the support of effective immediate surroundings. Borders in which permanent flowers would grow helped immensely to form the surroundings and consequently we find that in recent years a great growth has taken place in the popularity of perennial borders and also of perennial flowers.

PERENNIAL FLOWERS

One authority says perhaps the most striking advance in modern gardening is the advance in favor of what are popularly known as herbaceous plants. . . They have been the means of encouraging thousands to take an interest in flower gardens who formerly did not do so. But love of the flowers pure and simple has also been a very great factor in stimulating their popularity. Of course a great many of the best perennial flowers are of recent introduction but it is interesting to note that many of the favorites were known one hundred and fifty years ago. The popularity of perennial flowers will make the perennial border much more popular in the immediate future than it has been in the past.

The form of perennial borders is variable. All borders may, however, be here considered under four forms.

Form one.—The straight narrow border. This is generally found close to the house or by a boundary wall. It is particularly adapted to small lots and summer cottages.

Form two.—The straight wide border. This form is seldom used close to the house. It is generally seen to best advantage when placed close to main walks and when used in gardens of the formal type.

Form three.—The regular curved border. A very beautiful and perhaps the ideal form of the perennial border when rightly disposed. It appears to best advantage, perhaps, when placed a few yards back from a long curved walk.

Form four.—The irregular border. This form looks best in the foreground of masses of shrubbery. It is irregular in both depth and outline.

Perennial borders have more than a single purpose to fulfil. It is a mistake to think that the main purpose of all perennial borders is to give a succession of bloom. That should be the purpose of one particular type, but there are

At the Central Experimental Farm, Ottawa. A View of One End of the New Perennial Border

This border is four hundred and fifty feet long by twelve feet wide. It was planted in the autumn of 1911 from plants raised at the farm, many of them from seeds sown the same spring. This view was taken August, 1911. The border should look at its best during the next few years. Its flowers last from April till October.

The Bowmanville Post Office

Notice the window boxes. These were provided by the members of the Bowmanville Horticultural Society.

many beautiful borders planted with quite another purpose. For simplicity I suggest but two classes, based on their purpose. In the first class I suggest putting all borders which resemble an ideal perennial border. It must contain therefore all "ideal types. Class two must contain all other types, or nearly all the others. For want of a better term let these be called "the attractive types."

The borders in class one,'ideal types," should always possess certain characteristics, which may not be required in borders placed in class two. Two such characteristics are continuity of bloom and good arrangement. And these two characteristics are required as outstanding features in all borders which are placed in conspicuous positions, for the purpose of giving color or landscape effect.

In class two, the "attractive types," I would place a large number of borders which are planted with no such purpose in view. The first type in this class is that found in the gardens of many amateurs. It is generally made by those who have certain flowers and wish to have them growing in their gardens. Such borders can hardly be placed in class one, but they are often effective, pleasing, and most attractive and ideal in their class. A second type is that made to strengthen architectural features and often found in the formal garden, or at the base of a terrace; or in front of a bare wall.

The dividing line between these two classes is "continuity of blooming season," which depends of course, upon the number and choice of the plants used. If, therefore, we wish to plant perennial flowers in our garden we should ask ourselves, "What do we want them for?" For their own sake? To emphasize the architectural features of the house? To give landscape effect? or what? For what purpose do we want them? This question of purpose must be kept in mind. We shall then get better effects in our gardens, and the satisfaction arising from definite achievement will be far greater.

DEFINITE INTENTION

Miss Gertrude Jekyll has a good paragraph on color effects which I will quote, as it gives the same advice put in a better way. It deals with color, a question I have not touched on, but shows that "definite intention" or a realization of "purpose" is the one important thing in our work with the flowers. She says in her most recent book, "I am strongly of opinion that the possession of a quantity of plants, however good the plants may be themselves, and however ample their number, does not make a garden; it only makes a collection. Having got the plants, the great thing is to use them with careful selection and definite intention. Merely having them or having them planted unassorted in garden spaces, is only like having a lot of paints from the best colorman, or, to go one step further, it is like having portions of these paints set out on a pallette. This does not constitute a picture; and it seems to me that the duty we owe to our gardens and to our own bettering in our gardens is so to use the plants that they shall form beautiful pictures."

Making a Compost Pile

Wm. Hunt, O.A.C., Guelph, Ont.

To make a compost pile proceed as follows: Place a layer of sod with the grass side downward over about a square yard of level ground, then a second and third layer in the same way. On these place four inches in depth of either of the fertilizers named. Continue these successive layers of sod and fertilizer until the pile is three or four feet in height, finishing up with a layer of sod or soil on top. Fall or early spring is the best time to do this. Place wire netting over the pile to keep off chickens and animals. Throw a few pails of water on the pile in summer to hasten decomposition. Cut down with a sharp spade a portion of this from top to bottom of pile when ready for use, so as to get equal quantities of soil and fertilizer. It should then be passed through a coarse, three-quarter inch mesh sieve, or the material chopped or pulled to pieces before using, so as to retain all the fibry and organic part of the soil possible.

Preparing the Rose Bed

F. E. Buck, C.E.F., Ottawo. Ont.

What is the best method of preparing a rose-bed on gravel with four to six inches of loam on top? I have been told that clay makes a good bottom. With plenty of clay close at hand, also plenty of cow or horse manure, I would like to know how to proceed.—T.

Roses belonging to the hybrid perpetual class, as a rule, do best on soils of a heavy type, such as the clays, while roses belonging to the hybrid tea class do best on soils of a sandy type. If you wish to grow roses from both these classes, if you will proceed as follows, you should have equal success with both classes on your type of soil. However, if clay is easy to procure, no harm would follow if some were added to the part intended for the hybrid perpetuals.

With both kinds of manure available, it would be best to use a liberal quantity of both kinds mixed in about equal proportions. This should be worked into the soil by trenching. Trenching is a term used to describe the best method of thoroughly preparing any kind of soil that the effects of such preparation may be beneficial over a period of years during which it is almost impossible to apply manure to any extent because the plants in possession should not be disturbed. It is thus described: "Trenching consists of digging the soil to a depth of from two to three feet. Commence by taking out a trench two feet deep across one end of the plot. The soil from the trench is wheeled to the opposite end and placed there in readiness for filling the open trench that will be left when the worker reaches the end. When the two feet deep trench is made the bottom spit of soil is simply dug over, not removed. Then the top spit (about twelve inches) from the plot of ground immediately behind the open trench is thrown in the bottom of the latter together with four or six inches of well-rotted manure. The second spit is placed on that, filling the open trench to its original level and leaving a second open trench two spits (or two feet) deep. The soil at the bottom of this is dug over, but remains in its place. If the whole of the bed or border is treated in this way an empty trench will remain at the end of the plot; this of course is filled with the soil wheeled alongside from the first trench."

If it is intended to plant roses in the bed this spring it will be well to save a good sized heap of the surface loam before starting the preparation and use it to fill in round the roots of the young roses at the time of planting, as it is never wise at any time to let roots come into contact with manure at the time of planting. A better way might be to prepare the beds this spring, grow flowers in them, or leave vacant, this summer, and plant the roses in the autumn.

A First Prize Garden---"The Maples," Whitby, Ont.

Whitby's first prize garden is owned by Mr. E. Edmund Starr. Having listened attentively to the teaching of our worthy leaders in floriculture, Mr. Starr first carefully prepared his garden plan—with a view to adding to the attactions of "Beautiful Whitby," and at the same time providing luxuries for the table. After many years, lived in the city, the home garden appealed to Mr. Starr, who was instrumental in organizing the Horticultural Society of Whitby, and was its first president.

Where the Sweet Peas Bloom in Mr. Starr's Garden

A double row of maple trees stand in graceful guard at "The Maples," from the Kingston Road north on the west side for over one hundred and fifty feet. There is also a single row along the south, front and east sides. The generous lawn space makes a fine setting for the home, with its wide colonial porch, directly in front of which is a row of Spiraea van Houttei.

Crossing the lawn on the west side one passes through a vine-covered arched gateway into the currant garden. Here symmetric trimming promotes luxuriant growth and rare fruit. The neatly trimmed garden walks of green running north and south for two hundred feet and east and west for two hundred feet, add greatly to the attractiveness of the garden. Passing east along one of these well-kept walks one reaches the centre walk, running north. It has a hedge of grapes on the west over which one caught glimpses of a melon patch. Looking to the right one saw first the sweet peas. Last season these were nine feet high, with an abundance of bloom. They formed an entrance to another walk leading to the rose garden. In the gladioli patch, where one of the accompanying illustrations was taken, over three hundred and fifty spikes were gathered. North of the gladiolus grow the dahlias, the first row comprising Queen of Yellows at each end and Dreadnought in the centre. Then came the cactus varieties, Jackson, Floradora, Winsome, and Royalty. These have been very satisfactory. Black Beauty, Sylvia, Agnew, and Duchess of Cambridge have also been greatly admired.

Running north from the dahlia bed, a row of kocha stood guard along the pathway, with beans and asparagus in the rear. Returning to the eastward path the sweet peas are passed. The walk is bordered by lettuce, back of which is cress, the gladiolus showing with dahlias in the rear. Then came the vegetable garden. Not a weed was to be seen, though the generous rains had kept the hoe man busy. The order and design here displayed called forth much admiration throughout the season. Ornamental beets in three shades looked artistic along the pathway between gooseberry and currant bushes. Running north and south for fifty feet were rows of tomatoes, table beets, carrots, onions, parsnips, peas, snowball turnips, salsify, and radish, in the rear of which one saw corn (Golden Bantam) and potatoes.

THE ROSE GARDEN

In the rose garden there was a well kept walk throughout. The rose bushes were in bloom from June until October. There were many choice varieties. Quince, pear, and apple trees throve throughout the garden. The quinces were extra good last year.

Last year was Mr. Starr's first season as a practical gardener, and the thoroughness of his effort, with his methodical exactness, bespeaks still greater success in the future. J.P.S.

Light, hot, sandy or gravelly soils are greatly improved for rose beds by the mixture of loam and rotten cow manure.

Among the Gladiolus in Mr. Starr's Garden on August 1st

One of the Alluring Walks in Mr. Starr's Garden

Planting and Pruning Shrubs

H. J. Moore, Queen Victoria Park, Niagara Falls, Ont.

ORNAMENTAL shrubs are either evergreen or diciduous, but by far the greater number belong to the latter class. Shrubs which lose their leaves during the fall, with the exception of the more tender kinds, may be planted at any favorable time during the months of October or November, or in April and early May. For many kinds the fall months are the best, but as the prospective planter is concerned at present with spring planting remarks pertaining thereto will be more in keeping.

The method of planting is as important as the time, and when small areas such as beds or borders are to be planted these should be thoroughly dug or trenched. It is important that the soil be worked deeply, for successful culture depends upon the formation of a healthy fibrous root system. If the soil is a heavy clay loam it is well to incorporate such materials as stable manure, humus, in the form of decaying leaves or straw, and lime rubble, as these tend to mechanically open the soil, render it porous, and upon decomposition to supply the necessary plant food.

Holes large and deep enough for the reception of the entire root system should be dug. When placing each shrub, be careful to spread out the rootlets so that they radiate toward the circumference of the hole, in the bottom of which the soil should be forked finely. Gradually work fine soil between and around the root fibres and at the same time gently move the shrub to ensure even distribution of soil and separation of the rootlets. After the root system is entirely covered tramp carefully to firm the soil. Give water if the weather at the time of planting is dry or warm and finish the operation by filling the hole to the ground level and raking the surface finely. When it is desired to plant shrubs in lawns it is good practice to excavate much larger holes than the diameter of their root systems. If the soil is not of an apparently fertile nature it is well to mix with it leaf mould, semi-decomposed stable manure, or if possible, good loam. When planting, do not err by placing the roots on a hard impervious surface, but fork deeply to afford drainage. Place a layer of fine soil over the entire bottom, upon which spread the roots carefuly in the manner advised for border planting.

MULCHING

Newly planted shrubs should be mulched with straw in a half-decomposed state, or with decaying leaves to conserve the moisture in the soil if planted in the spring, or to prevent injury by frost if fall or winter planted. Rich, well-rotted manure should not be used as a mulch until the shrubs have made new fibrous roots, whose root hairs are capable of absorbing the food materials in solution which are rapidly formed in all fertile soils.

Many shrubs are annually killed by excessive applications of rotted stable manure as a mulch to soils already rich in essential food materials, especially those planted during the fall whose inactive roots are incapable of absorption, and must remain in a urine saturated soil until growth starts in the spring. These remarks on mulching apply also to trees which in transplanting often suffer injury to, or reduction of the root system. The folly of applying rich manure to these will be obvious to many.

ARRANGEMENT

The manner in which the shrubs are arranged is usually dependent upon the area at the disposal of the planter, or is purely a matter of taste. In the herbaceous border mixed shrubs make a splendid addition, provided they are properly placed, either as a background or to relieve a somewhat monotonous grouping of herbaceous subjects. When they are associated with herbaceous perennials, the aim of the planter should be to afford variety, and a succession of bloom through the entire season. To attain this, ascertain carefully the flowering period of any desirable species or variety and plant accordingly.

When it is desirable to make large plantations the genera are better grouped individually; for instance, a clump of Syringa (Lilac), Viburnum (Snowball), or Hydrangea paniculata will furnish a grander effect when arranged in large masses separately and flowering simultaneously than if dotted individually in mixed collections whose constituents flower at diverse times.

Short Hints on Planting

Wm. Hunt, O.A.C., Guelph, Ont.

Get the roots of all plants to be planted under the ground as quickly as possible. Half an hour's, or even a few minutes', exposure of the roots to hot sun and air will materially injure them. Heel the plants in temporarily in soil, or cover them up closely with damp, strawy manure, moss, or even old bags or sacking. Soil, however, is the best material.

Most of the fibrous-rooted perennials, such as campanula, helenium, rudbeckia, cerastium (Snow in Summer), phlox subulata (Moss Pink), and similar plants can be transplanted in spring. Plants that have fleshy or rhizome roots and bulbs, are best planted or transplanted in the fall. Lily of the valley and other garden lilies (L. candidum, L. elegans, and others) are best transplanted early in September. Lily of the valley is best set out in small clumps four or five plants in a clump, and the clumbs about six inches apart, or they may be planted singly two or three inches apart.

The bulbous rooted lilies are also best planted in clumps, six or eight bulbs in a clump. The bulbs should be set about six inches apart and from five to six inches from the surface. Put three or four inches of strawy manure over these before winter sets in. Lilies should not be transplanted or disturbed until the bulbs get very crowded and the clumps too large, as they do not like to be disturbed very frequently.

Paeonies, Dicentra (Bleeding Heart), and German Iris are best planted early in October. They succeed much better than when planted or divided in the spring.

Spring Gardening Suggestions

R. S. Rose, Peterboro, Ont.

IN laying out your garden this spring, do not look only at the vegetable side, but take into consideration the flower side as well. We all know that vegetables are a necessity, as the times go, but surely one can spare space at the border for some flowers, as every woman in the house has a knowledge of and loves plants as well as the added beauty that the flowers give to the rooms. No woman, if she can get them, would willingly be without them. So why not let her have them? When she sees them coming up, she will look after them, knowing what they will be to her and also to you during their time of bloom. So again I say, in laying out your garden this spring include some flower seeds in your order to your seedsman. To those who have not included these seeds in their order, I will try to give an idea of what I think would be advisable for them to get, with also plans of how this can be done and yet not take up too much space from their vegetable garden.

For a back yard garden of say thirty-five by fifty feet, make a three and one-half foot bed up both sides, and also at the end of your lot. On one side have a perennial border of Phlox as a background of all colors. In front of these can be put four o'clocks and stocks alternately with a front border of sweet alyssum.

On the other side have a background of golden glow, sunflowers, and hollyhocks, salvia and asters in front with a front border of pansies . At the end of the garden use sweet peas as a background, with a border of dwarf nasturtiums. Vegetables can be grown in the centre part of the garden.

Another plan could be adopted, such as a yellow background of golden glow and golden treasure, with asters in front at the back of the garden.

Along the whole side of the garden a bed four by five feet wide, with a background of sweet peas and morning glories . Dwarf nasturtiums or balsams can be grown at the foot of these, as they protect the roots of the vines from the hot sun and also help to keep in the moisture. In front a pick and come again bed can be planted with such flowers as stocks, zinnias, sweet suttons, phlox drummondii, gaillardia, wallflowers, centaurea, gypsophila scabiosa, pansies, and sweet william. These are all good annuals and bloom in profusion, giving beautiful flowers for picking. As a border mignonette, candytuft, and sweet alyssum go well together, and will also stand picking, or pansies and phlox drummondi could be planted alternately. A wild flower garden in the corner makes a splendid show, and one gets some good perennials as well as annuals in the packages. All gardens should have a wild flower corner, where everything can be allowed to grow in massed profusion. The balance of the lot can be used as a vegetable patch or made into a lawn to suit one's self.

Then again one can have a perennial flower bed at the very end of your lot, which will not interfere with the vegetables. The plants that are mentioned hereafter are all good strong growers, and give abundance of flowers throughout the season. The beauty of a perennial garden is not only in its bloom, but that it practically grows by itself, and whene one who has not the time to spend in the early spring season sowing seeds and so forth, the perenninal flower bed will be found a perfect blessing. It requires attention in the spring by digging in the top covering of manure which is put on in the fall as a protection against frost. In the summer all that is required is to keep the earth loose and free from weeds. The small attention that is necessary will doubly repay you by the splendid showing the flowers will make during the whole season from spring to late frost. The bed shown should be from say thirty-five to forty feet long and by about five feet wide. The plants should be planted two feet apart each way. They should not be crowded, but given plenty of room to spread. You need not, of course, follow the plan just as I have given it, as I am only trying to show the beauty of a perennial bed and what can be done with it. The balance of the lot can be planted with vegetables or left in lawn as one pleases. With this kind of a bed, flowers can be picked for the table or given away to one's friends, as it does the plants good to keep them well picked and not allow the blossoms to go to seed.

There are lots of other kinds of plants that can be used if one goes over any of the good plant catalogues that all of the seedsmen who advertise in The Canadian Horticulturist will be only too glad to send if you drop them a post card. The outlay for a perennial garden is heavier than for annuals, but it is there, and there to stay. And they need not be got all at once, but added to spring by spring as the fancy takes you.

PLANTS FOR SHADY PLACES

If you have a shady nook in the garden the following plants would do well there: A background of Columbine (Aquilegia), with Monswood (Aconitum), Bleeding Heart (Dielytra or Dicentra), Foxglove (Digitali) in front. Jacob's Ladder (Polemonium), Solomon's Seal (Polygonatum), False Solomon's Seal (Smilacina), Carolina or Indian Pink (Spigelia), Saxifraga Alpina, Primulas (Primrose), partial shade. Lilies of the Valley, Violets, Myosotis (Forget-me-nots), pansies, also do well in half shade.

There are many pleasing methods of training or growing roses. One is to take a long vigorous shoot of the previous season's growth, say of some perpetual rose, such as General Jacqueminot, bending it over and fastening the point of the shoot to the ground. This will cause every eye to break, and give you a short spur of growth, each surmounted with its brilliant blossom; an entire border treated in this way will give a perfect blaze of bloom.

8—Luxuriant Growth in the Garden of Mr. Geo. Vickers, Barrie, Ont.

Growing Potatoes on a Commercial Basis

A. C. Parker, Manager St. John's Valley Farm and Fruit Land Co., Burton, N.B.

POTATO raising may be divided into five sections: Selection of fertilizer and seed, selection and preparation of the soil, time and method of planting, cultivation and spraying, time and method of harvesting. The latter point I covered in an article in The Canadian Horticulturist last fall.

While the potato can be grown with fair success on a large variety of soils, still the ideal potato soil is a deep, sandy or gravelly loam, with sufficient humus to ensure retention of the necessary supply of moisture. It is from such soils the best quality of potatoes are obtained. The least favorable soil is a heavy clay, wherein the air does not circulate freely. A good clover sod, turned down in the fall, affords a good start for potatoes. Any sod land is preferable to old tilled land.

HARROW IN THE FALL

After ploughing sod land intended for potatoes in the fall, it should have a thorough harrowing. This aids in killing weeds and also aids in the decaying of the old sod. Land harrowed in the fall will be in condition to work in the spring, sooner than that which was not harrowed.

In the spring, as soon as the land is sufficiently dry to work, it should be thoroughly harrowed. This harrowing should be repeated every four or five days until planting time. In this way the land will get much warmer, and a large proportion of the weeds will be destroyed.

The harrowing should be done with a disk harrow, as any form of a drag harrow brings to the surface too much of the sod. This is undesirable, as it interferes very materially with planting and after-cultivation.

WHEN TO PLANT

Planting time varies on different soils and in different seasons. Unless you are growing for the early market, it is not advisable to plant too early. The majority of our potato growers plant too early. If seed and soil have been properly handled, and the proper method of planting followed, the potatoes will be up in from six to eight days. There is, of course, danger of delaying too late.

In the Maritime Provinces probably the best time to plant is the last week in May or the first week in June. Of course, this varies in different seasons. In some seasons the planting may be done better during the first and second weeks in June. I have seen large crops harvested which were planted the first week in July, but this is probably too late, as in only an exceptional season would a good crop be obtained by such late planting.

Any person growing potatoes on a commercial basis should have a potato planter. This is a great labor-saving machine, as it sows fertilizer, drops seed, and covers all at once. There are several good makes of this machine. The Aspinwall is, I consider, among the best. Anyone growing potatoes on a commercial basis should not try to get on without one of these machines.

Great care should be exercised not to plant too deep. A good many potato growers make this mistake. Potatoes should be planted on top of the ground with only enough earth over them to retain moisture. Two or three inches is sufficient. Some growers advise deeper planting. Potatoes will yield better if planted shallow. When planted deep it is almost impossible to dig them with a digging machine.

The care with which cultivation and spraying are done goes a long way towards determining the size of the potato crop. You cannot reasonably expect a good crop if you do not thoroughly cultivate. You must spray to keep bugs and rust from destroying the leaves of the plants.

USE THE WEEDER

As soon as the plants make their appearance through the ground, we go over them crosswise with a weeder, and scratch them down, very nearly level. Two days later we go over them again with the horse hoe and cover them up. After three or four days more this should be repeated with an additional cultivation. This kills all weeds and also makes the young plants strong, stout, and stalky.

In another week we cultivate and horse hoe again, with the hoe spread a little at the top. This is repeated in another week or ten days. If the ground is not too dry or weedy or hard, we do not do any more cultivating, but if either of these conditions exist we repeat again. If land has been properly worked before planting, the fourth cultivation will not be necessary.

Last year we sprayed with Bordeaux mixture, with arsenate for poisoning, with extra good result. We sprayed three times, using the regular formula for bordeaux and two pounds of arsenate to forty gallons of spray. This controlled the bugs completely, and I did not notice the least bit of foliage injury from it. In my opinion arsenate is a long way ahead of paris green for destroying potato bugs. It is almost impossible to raise potatoes successfully without spraying for rust. Rust is almost as bad a scourge on potatoes as the bugs. Rust can be successfully controlled by the use of bordeaux mixture. In some seasons it will be necessary to spray six to ten times to control it, but even at ten times, it will pay you for your trouble.

Celery for the Home Garden

George Baldwin, Toronto, Ont

Prepare your trench in the following manner: Mark off your ground six feet wide by the length required to take care of the quantity you intend planting. Dig this out to the depth of eight inches, throwing the earth equally on each side. Fill this eight inches up with good rotten manure and dig it in thoroughly and deeply. To insure its being thoroughly incorporated with the soil tramp all over it and then dig it up again. Then level and rake it over, after which mark off with a string, the three rows, which should be eighteen inches from each bank, and eighteen inches between the rows. The rows should run north and south. Next get your plants which should now be about eight inches long, that is, four inches of tops and four inches of roots; take the shears and clip off about one-half inch of foliage and one-half inch of roots, and then plant eight inches apart in the rows. Be sure when planting that you do not have the roots turning upwards. Dibble your holes big enough to allow the roots to go down in their natural position, and above all press the earth very firmly around the roots. Give a good supply of water and shade for a day or two with boards or paper.

You can get the plants of the three varieties mentioned from seedsmen, but do not leave it too late in ordering. You had better order early than wait until the twenty-fourth of May.

GROW SOME RADISHES

Along each side of your trench, you have a hill running the whole length probably a foot high. Level this off on top to about eight inches wide and sow radishes, which will mature long before you need the soil for earthing up purposes, in fact I get two crops of radishes off these hills.

CULTIVATION

From this out (your rows being wide enough) run your hoe through one day, and water the next day. Take off the nozzle and hold the hose down close and give a liberal supply of water. Once a week give the rows a watering with liquid manure. By the end of July you will have some celery fit to pull. About the second week of July start the earthing up operations by drawing from the hills on either side and putting about four inches of earth around the stalks. Do

Lettuce Grown by R. H. Ellis, Leamington, Ont., Spring of 1912

this by holding each individual plant firmly with your left hand and using your right to draw the earth, being very careful not to let any earth run in between the stalks.

BLEACHING

To thoroughly bleach the celery fit for table use, allow yourself ten days or two weeks, covering up within four inches of the tops of the foliage. Scatter a little sulphur or slaked lime over your bed twice during the season. Look occasionally for a green and yellow caterpillar. Don't squirt water on the foliage. Carry out the foregoing instructions and you will have celery fit to place before a king.

I recommend the earth instead of paper or boards for bleaching, because I have tried all these ways, and find the earth far preferable. It gives the celery a sweet nutty taste and the bleaching is more complete.

Tomato Growing

By an Amateur, Sarnia, Ont.

The following methods, as used by me, have proved successful in growing sufficient tomatoes for a small family on a plot of ground twelve feet square. The tomatoes were grown on a single stem, tied to stakes.

Procure stakes eight feet long. One way to do this is to get two inch planks at a saw mill, sixteen feet long. Have them sawn into strips two inches wide, then cut in halves and you have twenty-four uprights. Thoroughly enrich the ground. It cannot be too rich.

Dig trenches across the plot three feet apart, and one foot deep. Plant the stakes in the trenches two feet apart. When danger of frost is over plant a well grown tomato at each stake. If the tomato branches to the root cut all the branches but two leaving the main stem. Bend these branches down and cover with earth. As the main stem grows up the stake, keep filling in the earth in the trenches until the ground is level.

Each plant must be tied to the stake. Use the first tie about one foot above the level ground. After that, tie as the plant needs support. Use soft tying material such as candle wick, or strips of cotton. Do not wrap the tie cord round the plant. Wrap it round the stake, and pass it round the plant. Do not tie tightly.

As the plants grow they must be examined frequently so that all extra growth may be pruned out as early as possible. Branches and fruit will start from every joint close to the stem, and just as soon as the growth shows which is fruit and which is branch, the branch should be pinched out. The earlier this is done the more strength will be thrown into the stem and the fruit.

The stake will be about seven feet above the ground. In a good soil the plant should grow higher than the stake. After the plant is say two feet above the level ground the bottom leaves for the first foot can be cut off and then the ground can be frequently raked and kept clean.

Practically all vegetables are heavy feeders on the plant food in the soil, and so require lots of fertility, and speaking generally, stable manure gives the best results as a fertilizer. For such foliage plants as lettuce, cabbage and cauliflowers, a light application of nitrate of soda frequently about the plants, induces a quick, rapid growth, but care should be taken that the fertilizer does not come in contact with the plants, or they are apt to be killed by it.

Mildew is a fungus that develops rapidly in damp weather. Flower of sulphur dusted on the leaves when they are damp will prove an effective remedy.

Questions on Tomato Growing Answered

A. Walker, Macdonald College, Que.

What are the best varieties of tomatoes and the best greenhouse construction for the growing of such a crop?—Subscriber, British Columbia.

Of the varieties we have tested here Livingston's Globe is easily the best for the following reasons: The growth is ideal in that it is not too gross and the foliage ample without being too dense. This is a good feature as you can plant such a variety closer. The fruits are very uniform in size and of excellent form. Very few are rubbishy or small, which one so often finds in other varieties. The color is a very pleasing pink.

The maximum amount of light is perhaps the most important feature to be considered in constructing houses for this crop, although the question of ventilation is of about equal importance. I would advise detached houses running east and west sufficiently far apart that no shade would be thrown from one to the other. Then by using continuous ventilation on top and both sides, you have an ideal house.

There are so many up-to-date constructions to-day that I fear if I advise any special one I will have the time of my life warding off the attacks of the others. Suffice it to say the wider the house the better air conditions. The pitch of a house should be governed by the section of the country in which it is built. In British Columbia I would say from 30 to 35 degrees would be ample.

As a guide regarding the width of houses being specially constructed for the crops, I should say that 23 feet would be the maximum interior width, made up as follows:

Path, 1 ft. 6 in. wide.
Bed, 5 ft. 4 in. wide, giving 4 rows of plants, 1 ft. 6 in. apart.
Path, 2 ft.
Bed, 5 ft. 4 in. wide, giving 4 rows of plants, 1 ft. 6 in. apart.
Path, 2 ft.
Bed, 5 ft. 4 in. wide, giving 4 rows of plants, 1 ft. 6 in. apart.
Path, 1 ft. 6 in. wide.

The eaves of house should be at least seven feet in order to have plenty of head room for plants on side beds. Solid beds close to the ground well drained serve as well as raised benches for the crop.

The weight of glass per square foot need not worry anyone, as all forms of construction are sufficiently strong to carry whatever weight of glass may be used in greenhouse construction.

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 50 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.25 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 12,000 to 14,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912...	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912, 11,057

April, 1913..... 10,849

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of your loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

CHANGING CONDITIONS

Until recent years our agricultural colleges, experiment stations, departments of agriculture, and government organizations of farmers, fruit growers, vegetable growers, and allied interests have devoted their attention almost exclusively to gaining and disseminating information relating to the best methods of increasing crop production. There has been a general impression that the best method of ensuring prosperity for the farmer or fruit grower was to assist him in increasing his yearly production. Of late years this viewpoint has undergone a number of radical changes.

The rapid development of the great cities both in Canada and the United States, and the bringing under cultivation in the west of immense areas of virgin soil have so complicated the modern system of marketing the products of the farm and orchard, and have resulted in the appearance of so many middlemen in one form or another, it is now becoming clearly recognized that increased production will not necesarily benefit the producer unless methods of marketing are also improved. It has so frequently happened that fruit growers, shipping on consignment, have had nothing left for themselves after paying the transportation charges on their fruit and the commissions of the middlemen that there has been a growing demand for a closer regulation and adjustment of railroad rates, and for the introduction of co-operative methods of marketing among growers.

In the United States conditions have become acute. They led to the holding last month in Chicago of the first "National Conference on Marketing and Farm Credits." It was called by the publishers of the leading agricultural and horticultural publications of the continent. No less than four provinces and twenty-eight states were represented by delegates. Not much was accomplished at this first conference beyond the formation of an organization, whose duty it will be to conduct investigations to ascertain methods of improving existing systems of marketing the products of the farm and orchard. This conference has drawn attention to the importance of the problem involved and more rapid improvement in our methods of distribution may be expected from now on. The middlemen and great transportation companies are on the defensive, and they will be wise if they prepare for increasingly thorough and searching public investigations of their methods.

PARCELS POST

The phenomenal success of the parcels post system in the United States since its introduction on the first of the year and the announcement by Canada's Postmaster-General that the Dominion Government purposes introducing a parcels post system in Canada raises the question of what system is likely to be adopted. In the United States what is known as the Zone system is in force. The cost of shipping parcels is determined by the number of miles they are carried. This system seems fair, but it gives a decided advantage to firms doing business near the centre of the country. In the United States, for instance, firms located in the Mississippi Valley are able to forward parcels to either the Atlantic or Pacific Coast states at about half the cost incurred by firms located in these latter states who find it necessary to ship goods across the continent.

A consideration of this character is sure to be of sufficient importance with many concerns to be the determining factor in inducing them to locate at points where they can obtain the full advantage of such conditions. In Canada there is no extra cost entailed in sending a letter three thousand miles as compared with much shorter distances, and strenuous objection would be raised to the making of any change in this system. It is to be hoped, therefore, that the Government will endeavor to follow the same principle in connection with the proposed parcels post system.

RAILWAY RATES

To the old saying that "Figures cannot lie" there has been made the apt rejoinder, "No, but liars can figure." The defence of the railroad companies to the charges made by Mr. Donald Johnson, representing the Ontario Fruit Growers' Association, in his evidence before the members of the Agricultural Committee of the Dominion House of Commons, in which he claimed that Ontario fruit growers were discriminated against by railroad companies as regards the cost of transporting fruit to the markets of the middle West, appeared on the surface to be strong. The investigations, however, of Mr. G. E. McIntosh, the transportation agent of the Ontario Fruit Growers' Association, proved that Mr. Johnson's charges were well founded.

While the charges between Ontario points and Winnipeg are fair to the Ontario grower there is discrimination in the rates charged the western grower between Winnipeg and points farther west. Since the appointment of the Dominion Railway Commission Canadian fruit growers have succeeded in wringing many important concessions from the railroad companies. The pressing of the points now at issue between Ontario growers and the transportation companies should be all that is necessary to secure a further adjustment in rates that will be of benefit to the growers. Ontario growers are not asking that they shall be given any better rates than the growers of the Pacific Coast, but they request and will insist on obtaining rates that will be equally advantageous.

THE UNITED STATES TARIFF

The Democratic tariff bill that has received the approval of President Wilson and the leaders of the Democratic Party, and which is now receiving the attention of Congress has not gone so far as to place Canadian fruit on the free list, but has made some important reductions which will tend, should they be finally ratified, to result in the marketing of more Canadian fruit in the United States that has hitherto been the case. The reduction in the duty on apples from twenty-five cents to ten cents a bushel will be equal to a reduction from seventy-five cents to thirty cents a barrel. This will be sufficient to enable thousands of barrels of Canadian apples to find a market in the States.

The proposed drop in the duty on fresh vegetables from twenty-five per cent. to fifteen per cent. will be of most benefit to growers living near border points. Should potatoes be placed on the free list, as is now proposed, it will mean much to Canadian potato growers, particularly those in the Maritime provinces. On the whole the horticultural interests of Can-

ada have much to gain and nothing to lose from the proposed changes in the United States tariff.

The Horticultural Societies Act of Ontario is probably the best act of the kind in force in any province of Canada or state in the American Union. A number of provinces and states make annual grants to horticultural exhibitions of one kind or another. None that we know of make annual grants to local horticultural societies based upon their membership and expenditures for horticultural purposes. State or provincial legislatures which desire to promote the horticultural interests of their people will do well to examine carefully the Horticultural Societies Act of Ontario.

PUBLISHER'S DESK

The annual meeting of The Horticultural Publishing Co., Limited, was held in Toronto on March 27th. The reports presented showed that great progress had been made and that the Company was in the strongest position in its history. A substantial addition was made to the reserve fund from the profits on the year's business. The Horticultural Publishing Company publishes The Canadian Horticulturist and The Canadian Florist, and is now commencing also the publication of The Beekeeper. The officers of the Company were all re-elected, and are as follows: President, W. H .Bunting, St. Catharines; vice-president, John H. Dunlop, Toronto; managing director and secretary-treasurer, H. B. Cowan, Peterborough; directors, A. W. Peart, Burlington; Hermann Simmers and P. W. Hodgetts, Toronto; Harold Jones, Prescott.

Starting with this issue The Canadian Horticulurist hereafter will be published in two editions. The first or regular edition will be called The Canadian Horticulturist, and will appear in exactly the same form as the paper has had in the past. The second edition will be called "The Canadian Horticulturist and Beekeeper." It will be mailed to those readers of The Canadian Horticulturist who are especially interested in beekeeping, and will contain features that will be of special interest to them. The cover of the second edition will differ from the cover of the first edition only in the addition of the word "Beekeeper." Some five pages of matter appearing in the first or regular edition of The Canadian Horticulturist will be replaced in this issue by an equal number of pages of matter relating to the beekeeping industry. The pages in the May issue of The Canadian Horticulturist that will be changed will be pages 129, 130, 131, 133, and 134. There will be no other change. Owing to the heavy expense involved in making the changes necessitated by the publication of this second edition the subscription price of The Canadian Horticulturist and Beekeeper will be $1.00 a year and not 60c a year, which will continue to be the regular subscription price, for the present at least, of The Canadian Horticulturist. This second edition of The Canadian Horticulturist has been started as a result of the earnest soilcitation of the officers of The Ontario Beekeepers' Association, who have appointed it their official organ and subscribed for it for all of their nearly eight hundred members. As there are some eleven thousand beekeepers in Ontario alone, and as the great majority of these are interested in fruit growing, it will be seen that the new edition of The Canadian Horticulturist has a wide field in which to work. The advertisers in The Canadian Horticulturist will receive the full benefit of this departure as their advertisements will be published in both editions without change. Readers of The Canadian Horticulturist who would like to have their subscriptions changed in order that they may receive instead The Canadian Horticulturist and Beekeeper may have the change made upon request.

Have you noticed the "Absolute Guarantee" of our advertisers that we publish on the editorial page of each issue? Are you aware that The Canadian Horticulturist, with its companion publication, Farm and Dairy, are the only two publications in Canada that give such a guarantee of their advertisers? We take great pains to see that none but the most reliable advertisements are admitted to the columns of The Canadian Horticulturist. This involves the refusal by us of large volumes of business that readily find admittance to the columns of most other publications, but it enables us to give our readers the benefit of this guarantee. Read it and see how thoroughly your interests are protected every time you buy from one of our advertisers and tell them that you saw their advertisement in The Canadian Horticulturist.

Ask for what you don't see, is a good adage, and applies particularly well to a magazine. It is our endeavor as a horticultural magazine to keep our columns filled with advertising of interest to our readers, to be able to have them say, "When I want anything in the horticultural line, I only have to look among the advertisements in The Canadian Horticulturist." Sometimes, however, it is a difficult matter to get every line represented and so occasionally some of our readers write in with inquiries about certain articles which they do not find in our columns. We are glad to get such requests. During the next few weeks you will be requiring many articles in connection with your orchard, garden, or house, some of which you may not find advertised. Do not be afraid to write to us. We are constantly in touch with reliable firms handling goods of nearly every description. Our motto is "Service," and we will always be pleased to supply you with any information available.

International Score Card Competition

A feature of the next meeting of the American Pomological Society will be a score card judging contest. The purpose of this work is to bring about a more uniform and systematic system of judging fruits in competition. First, by bringing together a comprehensive collection of fruits from all parts of the continent; second, by requiring all contestants to use the same score card values; third, by requiring each contestant to judge both varieties of his own section and those from distant sections; fourth, by submitting a full explanation of the scores made by contestants to the convention, together with an explanation of the values written into the score cards.

This ought to result in several distinct advantages to both the producers and the consumers. The one ought to learn what to strive for in producing a fruit; the other ought to learn what constitutes a good fruit; and both ought to obtain a knowledge of the characters of fruits that are of particular importance and value. It is confidently expected that this step will inaugurate a distinct movement for better fruit, and that the growing, exhibiting, and marketing of fruit will receive a positive stimulus through the general introduction of a uniform score card practice in judging competitive exhibits. At present sixteen Agricultural Colleges have expressed hearty support of a plan to have teams of three from each of these institutions participate in the contest.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Perth

The April meeting of the Perth Horticultural Society had a number of inspiring features for those who are interested in the elevating service in which the true friends of the garden are concerned. The membership has been showing a steady increase for a number of weeks. It is now beyond the two hundred mark. The merits of the cause are prized not only by the people of the town, where the majority of the membership is found, but by the people in the country nearby, and as far on one side as twelve miles ,and on another side as far as twenty.—A. H. S.

Peterboro

The spring option list of the Peterboro Horticultural Society is as follows, each member being entitled to any one of the options, as well as to a year's subscription to The Canadian Horticulturist:

No. One—One box Asters, mixed; one box Stocks, mixed; one box Phlox, mixed.

No. Two—Three Paeonies, asorted colors.

No. Three—Three Calla Lilies, white, yellow and black.

No. Four—Six Dahlia Roots, choice varieties.

No. Five—Six Geraniums in four inch pots.

No. Six—Six Salvia, in three inch pots.

No. Seven—Twelve Groff's Hybrid Gladiolus, choice varieties.

choice varieties.

No. Eight—One Clematis Jackmani, three-year-old plants.

No. Nine—One Dutchman's Pipe, choice, four foot plants.

No. Ten—Five Delphinium, or Perennial Larkspurs.

No. Eleven—Five hardy Garden Phlox; new varieties.

No. Twelve—One Boston or Whitmani Fern.

No. Thirteen—One Kentia Palm.

No. Fourteen—Five Herbert Red Raspberry; five Black Diamond Raspberry.

No. Fifteen—Five Gooseberry Bushes; five Black Currants.

The annual convention of the Canadian Horticultural Society is to be held in Peterboro this summer and the local Society is planning to hold a Horticultural Exhibition.

The county of Grey (Ontario) has decided to make an exhibit of apples at the Ontario Horticultural Exhibition in Toronto, next November.

Transportation Charges Investigated

A Comparison of Rates from Ontario and Pacific Coast Points to the Prairies

MR. Donald Johnson, of Forest, Ont., when speaking for the Ontario fruit growers before the 'Agricultural Committee of the House of Commons, last winter, complained of the discrimination in the rates to which the fruit growers of Ontario have been subjected by the railway companies in connection with western shipments of fruit. The matter later received a great deal of prominence in the press of the country. This led the western freight agents to publish statements of rates, disputing the claims of the fruit growers that there was any discrimination. The Ontario Fruit Growers' Association thereupon asked Mr. G. E. McIntosh, its transportation agent, to look into the matter. Mr. McIntosh has done so, and has reported as follows to Mr. P. W. Hodgetts, the secretary of the Association:

"In regard to the rates given out for the railways by Mr. Lanigan, and appearing in the Winipeg Telegram of February 8th, in my opinion the rates are correct, and I do not think they have been publicly disputed by any representative of the Ontario Fruit Growers' Assocation, but just wherein lies the great preference to the Ontario shipper, as intimated by Mr. Lanigan, is a point not quite clear.

"The evidence given by Mr. Donald Johnson before the Agricultural Committee at Ottawa was to the effect that the Ontario shipper is called upon to pay a much higher rate to cover that territory lying west of Winnipeg to Calgary and Edmonton than the American or British Columbia shipper over the same trackage, and the following rates and mileage comparisons issued by Mr. Lanigan afford the proof:

From	To	Miles.	Route.	Rate per 100 lbs.
St. Catharines	Winnipeg	1383	Lake and rail	46c
St. Catharines	Winnipeg	1383	All rail	53c
Kelowna, B.C.	Winnipeg	1228	All rail	75c
Yakima, Wash.	Winnipeg	1387	All rail	75c
Wenatchee	Winnipeg	1325	All rail	75c
St. Catharines	Regina	1740	Lake and rail	76c
St. Catharines	Regina	1740	All rail	83c
Yakima Wash.	Regina	1030	All rail	75c
Wenatchee	Regina	958	All rail	$1.05
St. Catharines	Calgary	2223	Lake and rail	97c
St. Catharines	Calgary	2223	All rail	$1.04
Kelowna, B.C.	Calgary	890	All rail	58c
Yakima, Wash.	Calgary	595	All rail	95c

"Even from the standpoint of total mileage from point of shipment in Ontario to destination in the west and from point of shipment in Washigton or British Columbia to the Prairie markets, as here given, I fail to see the great preference our Ontario shipers are said to enjoy, if we but consder conditions as they exist.

"In this particular case, is it fair, however, to draw a comparison solely on a mileage basis? Must we not rightly give some consideration to the conditions which help to make these rates? Take, for instance, the haul from Yakima or from Okanagan to Calgary; compare the costly nature of construction of that piece of railway with that from Toronto to Winnipeg; consider also the heavy expense over that mountain haul of keeping up auxiliary power, the enormous expenditure on snow sheds and other preventatives from slides, and finally consider the fact that the one hundred and eighty per cent. type engine which would haul, say, four hnudred and eleven tons over that roadbed from Okanagan to Calgary, at a rate of fifty-eight cents per one hundred pounds, would haul, say, two thousand tons, or nearly five times the load from Toronto to Winnipeg at fifty-three cents a hundred pounds, thus handling the Ontario shipments from, say, St. Catharines to Winnipeg at a greater profit than the American or British Columbia shipments to Calgary.

"No complaint is made of the rate from Ontario points to Winnipeg, nor do we think the British Columbia shipper is charged an excessive rate to Calgary because conditions demand it. Taking the above points into consideration, the rates are probably fair to both, with certainly no advantage or preference, as intimated, to the Ontario shipper.

"With Winnipeg, then, as an entrance to this market for the Ontario apple shipper, and Calgary an entrance point for the Western States or British Columbia shipper, all on a fair rate basis, we find the territory lying between these points as follows:

"The Okanagan shipper pays on a through rate sixty cents to Calgary and seventy-five cents to Winnipeg, while the Ontario shipper pays fifty-three cents to Winnipeg and one dollar and four cents to Calgary.

"The Okanagan shipper pays on a through rate fifteen cents per one hundred pounds for the haul of eight hundred and thirty-seven miles between Calgary and Winnipeg, while the St. Catharines shipper pays fifty-one cents a hundred pounds over the same rails.

"The Canadian Pacific Railway makes a charge of eight cents a cwt. for the haul of six hundred and fifty-seven miles between Medicine Hat and Winnipeg to the British Columbia shipper and for the same haul charge the Ontario shipper forty-eight cents a hundred pounds.

"From Spence's Bridge to Medicine Hat a rate is given of seventy-nine cents and to Winnipeg eighty-five cents—six hundred and fifty-seven miles for six cents a cwt., but the Ontario shipper pays forty-eight cents for the same six hundred and fifty-seven miles.

"From Athol, Bonner's Ferry, and other Idaho points, the rate to Winnipeg, Brandon, Regina, or Medicine Hat is seventy-five cents a hundred pounds. Ontario shippers pay between Winnipeg and Medicine Hat forty-eight cents; between Winnipeg and Regina thirty-four cents, and between Winnipeg and Brandon nineteen cents a hundred pounds.

"Another advantage these shippers enjoy over the Ontario shippers is the privilege of collecting car loads at concentration points within a radius of sixty miles at a rate of ten cents a hundred pounds.

"Mr. Johnson's assertions regarding the territory here referred to, therefore, appear to be well founded. If the rates are to be based solely upon a mileage basis we might refer to the following:

	Miles.	Rate.
Yakima to Fort William	1809	85c
Oshawa, Ont., to Regina	1632	87c
Hood Riv. to Port. Arthur	1906	90c
Brampton to Medicine Hat	1827	96c
Yakima to Montreal	3154	$1.00
St. Catharines to Calgary	2223	$1.04
Hood River to Montreal	3254	$1.00
Forest, Ont., to Lethbridge	2178	$1.00

"It is, therefore, obvious that the freight rates even on a mileage basis give no advantage whatever to the Ontario producer. Advantages or a preference over other shippers are not sought for. The Ontario producer realizes, however, that with seventy per cent. of the crop marketed last season going into the western market, that to retain such and meet the future competition when the large orchard acreage of the Western States and British Columbia come into bearing, they must or should have an equal chance to reach that market west of Winnipeg by an equalization of freight rates for that particular territory.

"Exception should also be taken to the statement of Mr. Chas. Dewey, freight agent of the Grand Trunk Railway, in the same issue of the Telegram, in which he claims Ontario apples are generally shipped lake and rail. Only a very small percentage is given the lake and rail routing, scarcely any that are billed west of Port Arthur, so that all-rail rates must be considered.

"In regard to the supply of refrigerator cars, Mr. Dewey says: 'The statement of Donald Johnson that the refrgerator cars in the service of the Company are fewer this year than last year is not true.' This statement of Mr. Johnson's was in reference to the supply of refrigerator cars in service on the Grand Trunk Railway for the year ending 30th June, 1912, and if we are to believe the sworn statements of the officials of that Company submitted to the Minister of Railways and Canals, Mr. Johnson's assertion is correct. The figures as therein reported for the Grand Trunk Railway for five years past are as follow:

For year ending June 30,				1908,	955 ref. cars
"	"	"	"	1909,	949 "
"	"	"	"	1910,	947 "
"	"	"	"	1911,	944 "
"	"	"	"	1912,	941 "

"If a mistake has been made in the compilation of this report, a gross injustice has been done the Grand Trunk Railway Company. It, however, is the only means whereby the public can get this information and is accepted as authentic until discredited by those compiling the figures.

"The Ontario grower is not endeavoring to raise a howl against the railroads. He realizes that some railway companies are endeavoring to keep up with increased demands on their equipment, but he also realizes that he has given too much attention to production and not enough to transportation and marketing. Improvements in packing, as suggested by Mr. Lanigan, is one of the important matters too long neglected, but this will no doubt be greatly improved the coming season and a change made from barrel to box package. The conditons for marketing west of Winnipeg is another. It appears to the average Ontario shipper just as Mr. Johnson stated before the Agricultural Committee, and as above figures would imply, viz., that the Ontario producer pays too higb a rate west of Winnipeg compared with his competitors. (Sgd.) G. E. McIntosh."

Georgian Bay Growers Awakening

C. J. Mitchell, Clarksburg, Ont.

There is a new era dawning for the fruit growers of the Georgian Bay District, Ontario, and particularly the Beaver Valley. The advantages are unsurpassed by any other location in wide America. Already we have a few orchards that have been cared for, that are worth one thousand dollars an acre, but very few people know it. Large investors are more inclined to look far away, to British Columbia, Oregon and Washington for something, and overlook the opportunity right here in Ontario. There is no district in America as well situated for the growing of high-class apples. Lying on the South shore of the Georgian Bay, the climate is so tempered by the proximity of this large body of water as to insure against frost in spring and a sure ripening of the wood in the fall. These conditions are ideal and nowhere can they be excelled, abundant sunshine, and enough rainfall to make irrigation unnecessary. The soil is all that can be desired, when new, unsurpassed for richness, and perfect drainage, both of air and water.

This makes the Georgian Bay apples the best keepers in the world. They are also considered to be the best in flavor. Thus when properly grown they command the highest price in home and foreign markets. With all these advantages and cheap lands, the district only requires, to be known, to have a little more advertising, to make it one of the leading fruit growing regions of the country.

North America is the apple producing region of the world, and even it is limited to certain sections and locations. Until recently the eastern states, and particularly New York produced more apples than any other section. The industry has followed immigration and gradually moved north and west, until to-day the east has to come north and west for its supply of apples.

Never in the history of any country has there been such a manifest change. The farmers of the east no longer devote time and atention to the orchard, hence the insect pests and fungi diseases have driven out the home orchard. There are probably more acres to-day than there were twenty years ago, but as most of the old orchards are not producing, planting will have to be kept going pretty extensively to keep pace with the demands of our people. When I say our people, I mean the United States and Canada, while the foreign markets are also increasing with astonishing rapidity.

The question has been raised, will there be over-production? The increase in population in the last fifteen years could eat the entire crop of 1909, which was an average crop, and not give the people one apple each a day, while the other sixty-five million would not get a single apple. I think this should clearly show that there is no immediate fear of over production, and that we have the market practically right at home.

The Beaver Valley contains about two hundred and eighty square miles of the best orchard lands in the world, which are now selling for from fifty to one hundred dollars an acre, according to location and improvements. This surely is a

Douglas Gardens

Oakville, Ontario

A few items from our spring planting list:—

ANTHEMIS ..... 15c each
AQUILEGIA (Columbine) 2 sorts, ... 15c each
ASTERS (Michaelmas Daisies) 6 sorts, ... 15c each
ASTILBE (Spiraea) Jap. Com. Multi., ... 15c each
ASTILBE—Gladstone..... 25c each
ASTILBE—Peach Blossom.... 30c each
ASTILBE—Queen Alexandra 35c each
BOLTONIA ASTEROIDES (False Starwort) ..... 15c each
CAMPANULA (Bellflower) 3 sorts, ... 15c each
COREOPSIS— Grandiflora.... 15c each
DELPHINIUMS (Larkspur)... 15c each
GAILLARDIA ..... 15c each
HELENIUM—3 sorts ..... 15c each
HIBISCUS (Rose Mallows) 2 sorts, ... 15c each
KNIPHOFIA—The everblooming torch lily ..... 15c each
PENTSTEMON (Beard Tongue) 2 sorts, ... 15c each
PHYSOSTEGIA (False Dragon's Head) 2 sorts ..... 15c each
RUDBECKIA SPECIOSA ..... 15c each

All the above are Hardy Perennials. Sent carriage prepaid.

JOHN CAVERS

Surplus Stock

We offer subject to sale the following stock, which we guarantee to be true to name, No. 1. stock in every respect, 5-7 ft. high. Price F.O.B. Pointe Claire, $27 per 100.

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200 Baxter
500 Ben Davis
500 Duchess
500 Fameuse
600 Starke
600 Spy
500 Wealthy
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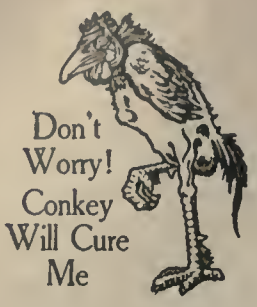

Do not let your chickens mope and die. Send for catalogue, with price list of Reliable Poultry Remedies, and prices of Eggs for hatching from different breeds of Poultry, including Turkeys, Ducks and Geese.

J. H. RUTHERFORD

Box 62

CALEDON EAST, ONTARIO

snap, when compared with the far western high-priced orchard land and still higher cost of preparation and upkeep.

It is not in apples alone that the Beaver Valley excells. Plums, pears, cherries, grapes, and many kinds of peaches, as well as all varieties of the smaller fruits succeed to perfection.

A few years ago at the Canadian National Exhibition, I placed on the table in one exhibit the most complete and interesting display of plums ever made in Ontario, or perhaps in the world: One hundred and forty-nine different varieties, all named. There were European plums, American plums, and plums from far Japan. Besides, I had about thirty others which were either too early or too late for the show. I only mention this to show our possibilities. They all grew on my farm adjoining the village of Clarksburg. I have also fruited to perfection over fifty varieties of pears, including the leading kinds. There is no guesswork about this; everything has been tested and proved by years of experience.

Situated as we are on the highway of commerce, both east and west, over three thousand miles nearer the great markets of the world than our western competitors, besides having all the natural advantages possible, surely we should be up and doing.

The orchards of the future are bound to be large commercial undertakings carried on either by individual effort or by companies, mostly the latter, and in the most scientific, business-like and up-to-date method possible. They will not be a side line like our old home orchards, which must be considered a thing of the past. The future of the Georgian Bay District will be just what we make it.

Romance in an Apple Orchard

L. H. Carey, Hamilton, Ont.

BEN DAVIS was an awful flirt. He was a TALLMAN and handsome, a native of SPITZENBURG, HOLLAND. He became hopelessly smitten on BELLFLOWER, who looked like a DUCHESS, dressed beautifully in a RUSSET gown. His attentions to her were so SWEET that he made the MAIDEN BLUSH.

Now she was engaged to another MANN. Although he was a BALDWIN, he was WEALTHY as a KING, and when he was advised of this he SWAAR, and with rage turned white as SNOW, and nearly took an APPLE-eptic fit.

He at once engaged a SPY, who soon informed him that he need SEEK NO FURTHER for her affections. He immediately left ONTARIO for a NEWTOWN down on the ST. LAWRENCE, where he met a ROME BEAUTY, and now he declares there are NONSUCH as she.

Items of Interest

Barn-yard Manure, Bulletin 246, of The Ohio Agricultural Experiment Station, Worcester, Ohio, deals with the production, composition, conservation, re-enforcement and value of barnyard manure.

Bulletin 252, of the same station, deals with the cultivation of early cabbage.

Shipments of fruit from St. Catharines have increased five hundred per cent. in ten years. Where ten years ago the Grand Trunk carried only ten cars of fruit, last year they carried over five hundred cars. This does not include shipments by express and other railway lines and steamers.

A Season Saved Is One Year Gained

We still have a stock of most lines of fruits which we offer at attractive prices.

These trees have been dug and carefully heeled in readiness for immediate lifting and speedy packing.

Do not leave the orchard land empty. This summer's growth will bring the orchard one year nearer harvest, and double the value of the land.

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Head Office: 95 King St. E., TORONTO

Nurseries: QUEENSTON, SIMCOE, OAKVILLE

Our Customers

Are Looking for Early

Vegetables

LETTUCE RADISHES
CUCUMBER RHUBARB

Also

Butter Eggs Poultry

DAWSON ELLIOTT CO.

Corner West Market Street, Toronto

Where There is Condensation

—there is need for a Morehead Steam Trap. Condensation in steam lines is akin to matter out of place—means wasted energy.

If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. Ask for Trial Trap.

CANADIAN MOREHEAD M'F'G CO., Limited
WOODSTOCK, ONT.

CANADIAN REPRESENTATIVES:—George W. Cole, Woodstock, Ont.; Robert S. Bickle, Winnipeg, Man.; H. E. Kirkham, Montreal, Que.; Robert Hamilton, Vancouver, B. C.

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We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

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Busby Lane	Mercer St.	Market St.	Powell St.

Pilkington Bros., Limited
Works at St. Helens, Eng.

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The Stratford Lawn Swing

Just the thing for your Lawn or Garden

It is fine for the youngsters and a source of enjoyment for the grown-ups too. It is inexpensive and helps you get the best of a summer's outdoor comfort.

Made in Three Sizes at Three Prices
Built Solid and Strong.

Write us for Booklet "F"

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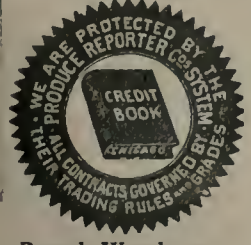
We make all kinds of Summer Furniture for Lawn and Verandah



Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

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WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

H. PETERS
88 Front St. East, Toronto

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

Ontario Apples in the West

Plunkett & Savage, Lethbridge, Alberta

The Ontario apples we have handled from time to time have given very poor satisfaction for the reason that they had not been properly taken care of during the growing season with respect to spraying and cultivation, as well as through not being properly packed. The only proper

The Spring Snowflake

(Lecojum Vernum)

way to pack apples to handle to advantage is in boxes with each individual apple wrapped in paper and the box paper lined.

We have received cars of apples from a shipper in the State of Washington who has frequently offered us one hundred dollars if we could find one apple in the whole carload with a worm-hole. When we take into consideration this offer, we believe there are very few apple growers or shippers in Ontario who would be prepared to make the same offer.

The fruit trees in Washington and the States generally are far better taken care of than in Eastern Canada, and we believe if the Ontario growers and shippers intend to retain the western market, they have got to wake up and use facilities necessary for keeping their fruit clean and free from defects.

GOOD SEEDS FOR GOOD CROPS

Reliable Merchants everywhere sell

STEELE, BRIGGS' SEEDS

Look for them—accept no other.

Steele, Briggs' are the best grown. No matter what you need in Seeds, this name stands for highest quality.

Behind every packet is the strongest seed reputation in Canada.

Thousands of successful growers everywhere use **Steele, Briggs' Seeds** year after year because they are sure of what they are buying. We retain control of our packets and supply them fresh each season.

Look for this box at your local store. If your local dealer cannot supply you, send in your order direct.

STEELE, BRIGGS SEED CO. Limited

TORONTO, ONT. HAMILTON, ONT. WINNIPEG, MAN.

IHC Wagons Are As Good As They Look

TO really know the value of a wagon you must know of what material it is made, how it is built and about how many years of satisfactory wagon service you may expect. When you know all there is to know about I H C wagons it is safe to say that your next wagon will bear the I H C trademark—the stamp of quality and honest value.

Every piece of wood used in I H C wagons is carefully selected and air-dried. Only in air-dried lumber does wood retain its full strength and elasticity. All steel or iron is selected with the same care to secure the greatest possible strength. Thorough knowledge of the strain each part must stand is necessary because a wagon, like a chain, is no stronger than its weakest part. Every part of I H C wagons

Petrolia **Chatham**

has the same relative strength. The men who build I H C wagons know why one part is built stronger than another, know the exact strain it will have to bear. This same thorough knowledge has enabled them to build a wagon of light draft, which puts the least strain on the horses, without impairing the strength or durability of the wagon.

The finishing touch, the thing that adds to the life and appearance of an I H C wagon, is pure paint. Cheap paint may improve the appearance of a wagon for a short time, but after that is a positive detriment. Only pure paint is used on I H C wagons. It fills the pores of the wood, prevents shrinking, swelling, warping and twisting, and acts as a wood preservative.

There are many other reasons why I H C wagons are such good wagons, why owners say they are the best and most satisfactory. Have the I H C local agent show you an I H C wagon, or, if you prefer, write the nearest branch house for catalogues.

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EASTERN BRANCH HOUSES

At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa; Ont.; St. John, N. B.; Quebec, P. Q.

Built at Chatham and Petrolia, Ont.

No Experience Needed

You do not have to be an expert gardener to be able to make a good selection of vegetable and flower seeds from Ewing's new 1913 Catalogue. Not at all. For

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listed in this Catalogue are all vigorous, "pure-bred" seeds of good varieties, each one of which is so clearly and accurately described that it is a simple matter to select those best suited for your particular garden.

Whichever ones you choose, you can count on the same satisfactory crops which have been grown in Canada for more than forty years from Ewing's Reliable Seeds.

Write now for our Illustrated Catalogue, and if your dealer hasn't Ewing's Seeds, order from us direct.

WM. EWING & CO., Seedsmen

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BRIGHTEN UP

your home with the wonderful **White Flame Burner.** Makes your old lamps and lanterns give a brilliant soft white light better than electricity or gas. Saves eyesight and makes reading or sewing a pleasure. **No Mantle to Break.** Reliable and economical. Satisfaction guaranteed. Delights every user. **Complete Sample Mailed to any address for 35 cts. or 3 for $1.00. Money back if not Satisfactory. Mail orders promptly filled.**

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BEZZO'S FAMOUS PRIZE ASTERS

Prizes at New York State Fair 1910-11; Berlin Horticultural Society 1911-12; Canadian National Exhibition, Toronto 1912.

Vick's Violet King, Rose King, Royal White, Royal Lavender, Royal Purple, Vick's Rochester, a lavender pink, Vick's Peerless Pink, Salmon Pink, small flower but very pretty; Improved Hohenzellern in white or rose; Improved Crego Pink; Late Branching White, Rose, Pink, Lavender; Early Branching White, Rose, Crimson, Lavender, Queen of the Market (very early) in white or pink. These are very truly the aristocrats of the Astor family. All plants sent by express (unless otherwise arranged) and guaranteed to arrive in good condition. Price $1.00 per hundred, packed and labelled separately in wet moss. Express prepaid on orders of $2.00 and over. Special prices to Horticultural Societies. All plants cold-frame (not hot-bed) grown, and with favorable weather will be ready last week in May.

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SIMMERS' SEEDS

VEGETABLE SEEDS

No. 1 $ Collection

25 Pkts.

Bean — Simmers' Giant Wax.
Beet—Blood Turnip.
Cabbage—Vandergaw.
Carrot — Scarlet Intermediate.
Celery—White Plume.
Corn, Sweet—Cory.
Cucumber—Chicago Pickle.
Cucumber—Long Green.
Lettuce—Simpson's Early
Muskmelon — Montreal Green Nutmeg.
Watermelon — Cuban Queen.
Onion—Yellow Danvers.
Onion—Prizetaker.
Parsley—Champion Moss Curled.
Parsnips—Improved Hollow Crowned.
Pepper—Sweet Spanish.
Peas—American Wonder.
Peas—Stratagem.
Pumpkin—Mammoth.
Radish—Scarlet Turnip, White Tipped.
Salsify—Mammoth Sandwich Island.
Squash—Summer Crookneck.
Squash—Hubbard.
Turnip—Purple Top, Strap-leaved.
Tomato—Early Ruby.

And packet Wild Garden Flower Seed Mixture, also a copy of Simmers' Vegetable and Flower Garden (New Edition.)

Contains 25 packages of the best Vegetable Seed, sufficient to furnish vegetables throughout the year, and one packet of Flower Seeds, which we will send postpaid to any address in the Dominion of Canada for the extremely low price of $1.00.

FLOWER SEEDS

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CONTAINS 30 PKTS. CHOICE FLOWER SEEDS

Alyssum, Sweet—Little Gem.
Balsam, Double—Mixed.
Calendula.
Canarybird Flower.
Candytuft.
Carnation—Marguerite
Castor Oil Bean.
Chrysanthemum—Annual sorts.
Cosmos—Mixed.
Double Japan Pink—Best Mixed.
Eschschoitzia.
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Gaillardia—Annual.
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Gourds, Ornamental.
Marvel of Peru.
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Mignonette.
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Nasturtium, Dwarf—Mixed colors.
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Poppy—All kinds, mixed.
Portulaca—Mixed sorts.
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Snapdragon.
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Sweet Peas.

Either of above Collections sent Post Paid for ONE DOLLAR

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FLOWER POTS

Hanging Baskets, Ferns Pans, Etc.

We have a large stock of all sizes on hand, and can ship orders without delay.

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Our pots are smooth and well burnt. We have our reputation to keep up.

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Landscape Architect

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Artistic Plans, Sketches furnished for all kinds of LANDSCAPE CONSTRUCTION WORK.

Ornamental Trees, Shrubs, Coniferes, Hardy Perennials, etc.

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Phone 148

Congratulations

The February issue of The Canadian Horticulturist is a credit to the publishers, to the fruit industry and to Canadian journalism. It strikes that national note that we so much appreciate. The cover is a work of art as well as a good practical up-to-date picture of spring.

I used to wonder, when I was in Ontario, why some firms did not advertise power sprayers to the sleeping fruit industry of that province. Now I am pleased to see so many firms advertising and trust that they will each get a big enough slice of the trade to pay them for it. The circulation of The Canadian Horticulturist should climb at the rate of five hundred a month.—Chas. Webster, Armstrong, B.C.

New Brunswick

In his address as president of the New Brunswick Fruit Growers' Association, Mr. C. N. Vroom, of Fredericton, spoke recently as follows.

The past year was not one of the most prosperous. While in some parts of the province the crop of small fruits and of apples were fairly good, the weather conditions generally were against us. This resulted in incomplete fertilization of the blossoms and a consequent small set of fruit, much of which was inferior in quality, and later in much fungus growth, which was not wholly controlled by spraying, although as is usual the fruit which was carefully sprayed showed to great advantage over that which was not so cared for.

The concensus of opinion among the members of the Fruit Growers Association, obtained by the Secretary, was against the holding of an Exhibition last year, and the Department of Agriculture in the absence of the exhibition, made exhibits of fruit in different sections, which attracted much attention, and gave a good advertisement to the fruit growing capabilities of the province.

The setting of new orchards is steadily increasing. Last year the association through its secretary, handled fifteen thousand trees which were distributed to members at cost, at a large saving of money to the members, and an assurance to them of good stock, correctly named. This, and the providing of spraying materials, have been important points in the association's work.

I hope that the association will arrange for the holding of an exhibition in the fall of this year. These exhibitions serve the double purpose of advertising the advantages of our province for the fruit industry, and of interesting our farmers in this special line of work, which I believe is the most profitable in which they can engage.

The Canadian Horticulturist has received recently from the Dominion Experimental Farm, Ottawa, two interesting bulletins, both by Mr. W. T. Macoun, Dominion Horticulturist. One is entitled "Apple Breeding in Canada," and the other "Hardy Roses, Their Culture in Canada." Both are well worth sending for.

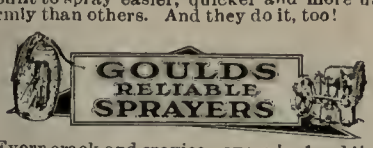
The Canadian Horticulturist is one of the best papers published. I always keep my copies and bind them.—Wm. McSkimming, Guelph, Ont.

Guaranteed Sprayers

Back of every Goulds Reliable Sprayer is a broad, strong guarantee of satisfaction. Quality is the watch-word in our factory, which is the largest and oldest in existence. A Goulds Sprayer goes right on successfully fighting insects and fungous enemies long after cheaper outfits have worn out. Thousands of satisfied users *prove* that Goulds Reliable Sprayers are the best for field crop and orchard work.

Bigger Crops—Bigger Prices

That's what users the world over are getting with the aid of Goulds Reliable Sprayers. They are built on practical, "experience-taught" lines—built to spray easier, quicker and more uniformly than others. And they do it, too!



Every crack and crevice—every leaf and limb is uniformly sprayed with a Goulds Reliable Sprayer. All working parts are rust and chemical proof—reasons why they last. Made in 25 different types, for hand and power.

Write for Free Book

Our new book—"How to Spray, When to Spray, Which Sprayer to Use"—is well worth reading. It's an education to every farmer and fruit grower—expert or novice. Write for a copy today. It's free.

THE GOULDS MFG. CO.
17 W. Fall St., Seneca Falls, N. Y.

EGG CIRCLE STAMPS

For neat Egg Markers for Circles or Individual Poultrymen

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115 BAY ST. - TORONTO

Ruff's Special Tomato Manure

A high concentrate of Acid Phosphate, Sulphates of Potash, Iron and Ammonia.

One application of 3 ozs. per sq. yard will ensure a superb crop of tomatoes.

It builds up a more robust, dark foliaged plant for developing the fruit. There is an entire absence of superfluous growth.

Ruff's Special puts the value into the basket instead of into a coarse plant, heavy with foliage and lacking fruit.

TRY IT AND SEE

Prices:

5 lbs.	-	60c
10 "	-	$1.00
25 "	-	$2.25
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100 "	-	$6.00

Express paid on 5-lb. orders in Ontario. The rest are F.O.B. for cash with order.

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MAXWELL'S HIGH SPEED CHAMPION

is the Washer for a Woman

In the first place, Maxwell's "Champion" is the only washer that can be worked with a crank handle **at the side** as well as with the top lever. Just suit your own convenience.

Another Maxwell feature—Lever and Balance Wheel are so accurately adjusted and work up such speed that the washer runs along even when you have stopped working the lever. There's no doubt about Maxwell's "Champion" being the easiest running washer on the market. Write for new illustrated booklet if your dealer does not handle Maxwell's "Champion" Washer.

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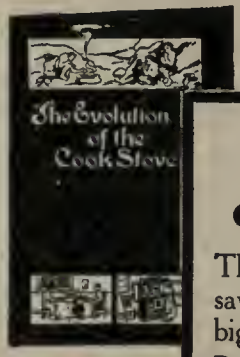
THE HIGH SPEED CHAMPION WASHER

THE HIGH SPEED CHAMPION WASHER



Let us send you our book "The evolution of the Cookstove"—an interesting history of cooking. It also gives a clear, simple description of the Dominion Pride Range—complete in every detail. Reading this book is like examining the range itself.

Send for a copy.

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Send a free copy of your book "The Evolution of the Cookstove."

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Save 30% on your New Range

That's about $20.00 isn't it? And you can save it by ordering direct from the factory (the biggest malleable range plant in Canada.)

Dominion Pride Range is the range you would choose at any price—a beautiful steel range with unbreakable doors, castings and lids of malleable iron—a range that saves coal—a range so solidly built that with care it will last a lifetime.

And you can secure a Dominion Pride Range by making a small payment with your order—the balance on terms to suit your convenience.

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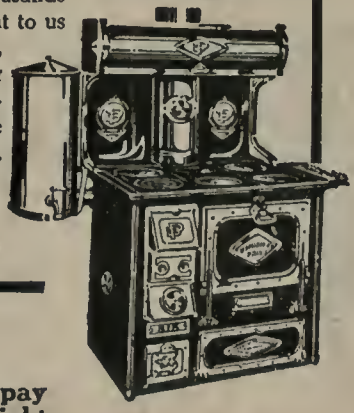
Thousands upon thousands of Canadians have sent to us direct for their ranges, and we have yet to hear a complaint. Our unconditional guarantee goes with every range.



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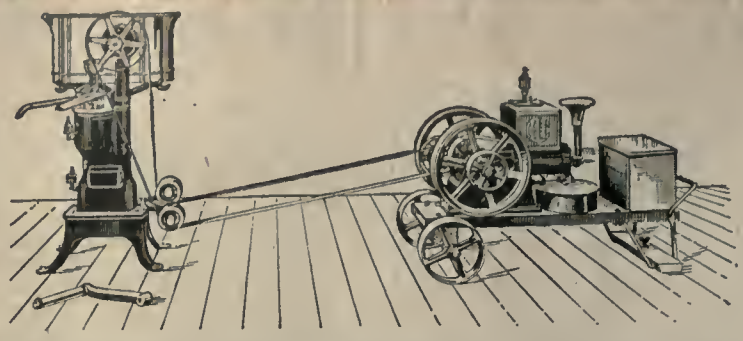

Cream Separator Savings

AN I H C cream separator saves money for you in more ways than most people know. It saves cream because it skims practically all the butter fat out of the milk. It saves on the feed bills. Calves and pigs thrive on the sweet, warm skim milk that comes fresh from the separator. It saves fertility. The dairyman who feeds the skim milk to animals parts with a very small amount of fertility. The man who sells whole milk loses close to $4.80 per cow per year in fertilizing matter. These three savings, while not all that a cream separator makes, are important enough to warrant the most thoughtful consideration.

I H C Cream Separators

Dairymaid and Bluebell

are also furnished as complete power outfits, as illustrated above. The engine is a one-horse power, back geared, hopper-cooled, I H C engine which can be detached and used to run any small machine. The separators are built for long life and skimming efficiency. They have heavy phosphor bronze bushings for bearings; a never-failing splash oiling system; trouble proof bowl spindle bearings; dirt and milk proof spiral gears which are easily accessible for cleaning. There are four convenient sizes of each style. Ask the I H C local agents who handle these machines for demonstration. Get a catalogue and full information from them, or, write the nearest branch house.

International Harvester Company of Canada, Ltd

BRANCH HOUSES

At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, North Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

Needed on Every Farm

A tonic and conditioner to keep horses, cattle, sheep and hogs healthy; vigorous and productive. Here it is!

Pratts Animal Regulator

For forty years the stock owner's favorite. It has no equal. Costs little but is mighty in results.

25c, 50c, $1; 25-lb. Pail, $3.50

No use to have your horses "laid up." They should be at work. Remember that all sprains, bruises, sore or stiff cords and muscles are quickly cured by

Pratts Liniment

25c, 50c, $1

It also relieves rheumatism and neuralgia. Equally good for man or beast.

Pratts Healing Ointment

or Healing Powder

should be kept on hand for instant use. It is a household and farm necessity and works wonders on man or beast. Cures cuts, wounds, sores, scalds, burns, galls, cracked skin. Soothing and positive in action.

25c, 50c. Sample mailed for 2c

All of the above carry Pratts guarantee

"Your money back if it fails"

Our products are sold by dealers everywhere, or

THE PRATT FOOD CO., OF CANADA, Ltd.
TORONTO, ONT.

Stock Book FREE

Fruit Growing in Quebec

By the President of L'Islet Horticultural Society

FRUIT growing is extending rapidly in the province of Quebec. There are many reasons for this, one of the principal ones being the splendid work that is being accomplished by our numerous fruit experiment stations. These are strategically located in various counties of the province.

The stations in operation this year are as follows, the name of the manager being given in each case:

Village des Aulnaies, L'Islet Co., Auguste Dupuis, manager; Rimouski, Rimouski Co., Rev. Fr. Henri; Caplin, Bonaventure Co., J. T. Bujold; Manseau, Nicolet Co., Alcide Savoie; Gaspe Basin, Gaspe Co., Wm. H. Clark; Isle-Verte, Temiscouata Co., J. T. Bertrand; Notre-Dame du Lac, Temiscouata Co., Napoleon Morneau; Roberval, Lac St. Jean, Ursuline Convent; Ste. Henedine, Dorchester Co., Mrs. N. Roy; Saint-Damien, Bellechase Co., Sr. Ignace de Loyola; Sainte Famille, Montmorency Co., F. X. Gosselin; Charlesbourg, Quebec Co., Etienne Paradis; Plessisville, Megantic Co., George Savoie; Sainte-Adele, Terrebonne Co., Dr. W. Grignon; St. Theodore d'Acton, Bagot Co., Auguste Lacoste; Beauceville, Beauce Co., Fr. Mariste; Saint-Pierre, Montmagny Co., J. Delagrave; Chateau-Richer, Montmorency Co., Jos. Cloutier; Saint-Germain, Kamouraska Co., Pierre Tardif; Saint-Leon, Maskinonge Co., Horm. Paquin; Victoriaville, Arthabaska Co., F. X. L'Abbe; Grand Mere, Champlain Co. Georges Chahoon; Rectory Hill, Megantic Co., Rev. Mr. Dickson; Shawbridge, Terrebonne Co., Boys' Industrial School; Saint-Anselme, Dorchester Co., Auguste Lavallee; Saint-Georges, Beauce Co., Louis Gendereau; St. Sylvestre, Lotbiniere Co., Louis Prieur; La Trappe, Two Mountains Co., Br. Leopold; Ste. Anne, Chicoutimi Co., Thom. Will. Tremblay.

Then also there is the Village des Aulnaies Nurseries and Fruit Garden, established in 1860 by Aug. Dupuis, M.C.A.; proprietor, Albert D. Verreault, Village des Aulnaies, Que.

Here were imported trees from Ontario, the United States, and France. The fittest that survived the severe winters were multiplied, and are now cultivated all through the north-east part of the province. Messrs. Chas. Arnold and Beadle, of Ontario, guided the first experiments, and now Mr. Beadle's succesors, of The Canadian Horticulturist, continue to guide us in modern fruit culture, and we take pleasure in acknowledging it.

Mr. J. E. Caron, Minister of Agriculture, is also helping the industry, which has made great progress in the last few years in north-eastern Quebec. Twenty-four demonstration orchards in L'Islet and Kamouraska counties are in operation. Spraying and pruning demonstrations were made last year in over four hundred orchards in these two counties by government experts and explanations given of each operation.

Two fruit cooperative associations, one at St. Anne Lapocatiere, with a canning factory, and one at St. Valier, are giving satisfaction to the fruit growers. Ten thousand quart and gallon cans of preserved plums were sold at the St. Anne factory to the Canadan Pacific Railway Co. last winter. Car loads of Damson and Reine Claude plums were sold at Montreal in refregerator cars by the cooperative society last fall. These sales have created enthusiasm in plum culture, and numerous

OLD FASHIONED FLOWERS

For the Garden

Send for List of

WESTLAND'S HARDY PLANTS

PAEONIES, PHLOX, IRIS, Etc.,

In many Beautiful and New Varieties.

ROSES, LILACS, SYRINGAS, MAGNOLIAS, Etc.

MALCOLM WESTLAND

TAMBLING CORNER, - LONDON, ONT.

BROWNIE

No. 3

PICTURES 3¼ x 4¼

PRICE $4.00

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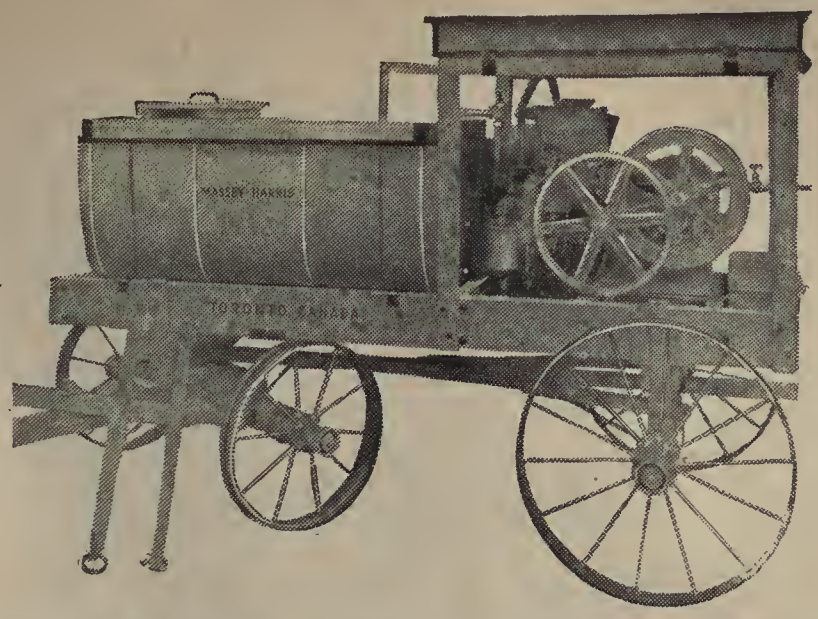

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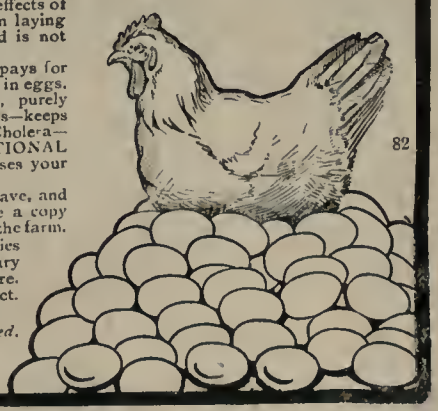

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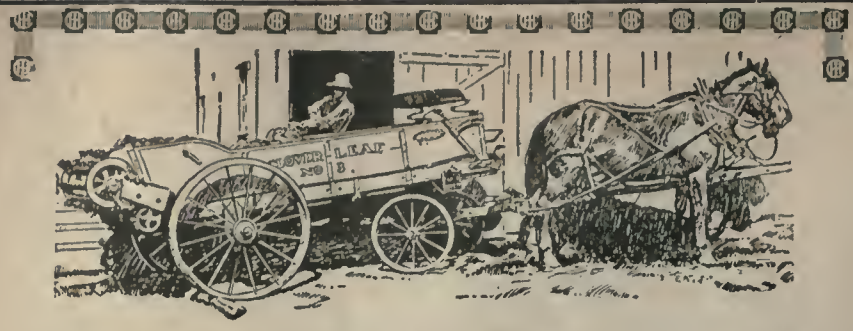


An Unsolicited Testimonial

A CLEAR-EYED young farmer stepped up to a manure spreader demonstrator at the 1912 Chicago Live Stock Exposition and, pointing to one of the spreaders in the exhibit said:

"I own one of those machines. It is the strongest spreader I ever had on my farm, and I've had a number of different machines. I honestly believe that if I filled that spreader with soft coal it would spread the stuff for me. I wouldn't trade it for any spreader I ever owned or saw."

This unsolicited recommendation from a man who had used an I H C spreader, and therefore knew what it would do, carried weight with his hearers. They might have doubted whether an I H C manure spreader would spread soft coal—but there was no doubt in their minds that an I H C spreader had spread manure to this man's entire satisfaction. This is a typical case showing what users think about

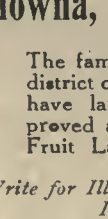
I H C Manure Spreaders

Corn King and Cloverleaf

I H C manure spreaders are made in many sizes, running from small, narrow machines for orchard and vineyard spreading to machines of capacity for large farms. They are made with either endless or reverse aprons as you prefer.

The rear axle is placed well under the box, where it carries over 70 per cent of the load, insuring plenty of tractive power at all times. Beaters are of large diameter to prevent winding. The teeth that cut and pulverize the manure are square and chisel pointed. The apron drive controls the load, insuring even spreading whether the machine is working up or down hill, or on the level. I H C spreaders have a rear axle differential, enabling them to spread evenly when turning corners.

The local agents handling these machines will show you all their good points, and will help you decide on the one that will do your work best. Get literature and full information from them, or, write the nearest branch house.



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At Brandon, Calgary, Edmonton, Estevan, Hamilton, Lethbridge, London, Montreal, N. Battleford, Ottawa, Quebec, Regina, Saskatoon, St. John, Winnipeg, Yorkton

orchards will be planted this spring east of Quebec City, especially blue Damsons and Reine Claude trees on own roots (no grafting).

The Outlook for B. C. Fruit Growers

In the April issue of The Canadian Horticulturist appeared a lengthy statement prepared by officers of the British Columbia Fruit Growers' Association, entitled, "Marketing British Columbia Fruit." This article explained the reasons for the low prices that prevailed for fruit, and dealt with future prospects. Lack of space prevented the statement being published in full. The concluding portion of this statement, which was signed by N. Crawley Ricardo, president and chairman of the directorate of the association, and by R. M. Winslow, the secretary, is as follows:

"The present condition of the fruit market is only temporary. The fruit and produce business is always cyclical, and subject to periods of depression, followed by like periods of high prices and great prosperity. The more we can eliminate extremes, the less reaction there is. British Columbia growers are in a particularly favored position. The population of the prairies, their own particular market, is growing larger every year, and at a phenomenal rate of increase. The whole country now is being covered by a network of railroads, which will tend to give better transportation and better service. The experience which we have had, and which has, perhaps, been dearly bought, will enable us to get better disribution for our products. More knowledge in every w: in production, in packing and distribution, will better conditions; more advertising: advertising which every successful box of apples brings, through the satisfaction given to the customer, and the careful education of the general public on the subject of fruit.

"It is a fact often overlooked that the majority of fruit growers are getting returns from young orchards, and just now it is not so much the number of boxes to a tree, as the number of trees to a box, which obviously enhances the cost of production. These same trees are growing up, and it will not be long before we are getting far bigger tonnage per acre, at a same or a lower general cost of general production.

"Freight rates are lower than they formerly were; transportation conditions, although not yet ideal, are better; and it must not be forgotten that fruit prices for box fruit have steadily risen. Orchard returns and shipping returns must be taken over a period of years to enable one to arrive at an average price. Though prices

They Liked It

Enclosed you will find three dollars for the enclosed five subscriptions. I let these gentlemen see the March Number, and they were so pleased with it that they asked me to take their subscriptions. I may send you a few more names later on. I find The Canadian Horticulturist a good advertising medium, and would like to see the number of subscribers twenty-five thousand by the end of 1913.—W. Walker, Port Burwell.

BRITISH COLUMBIA

Fruit Lands for Sale

Kelowna, Okanagan Valley

The famous Apple Growing district of the Province. We have large listings of Improved and Unimproved Fruit Lands. Easy Terms.

Write for Illustrated Booklet and any Information to

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Box 251, Kelowna, B.C.

Bow Park Farm's

Golden Rain Seed Oats, 75c per Bushel!!

Great new Swedish variety. Extremely well adapted for Ont. Germination 98%

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Asparagus Plants, two years old!!

100 Plants 50c. - 1000 Plants $4.50

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Hatching Eggs, $1.50 per Set of 15!!

R. C. White Wyandottes, R. C. Columbian Wyandottes, from the very best layers only, selected by trap-nests and records.

BOW PARK FARM

Dominion Canners Seed & Experimental Farm

BRANTFORD, Ont.

THIS WASHER MUST PAY FOR ITSELF.

A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse was'nt "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it.

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

Drop me a line to-day, and let me send you a book about the "1900 Gravity" Washer that washes clothes in six minutes.

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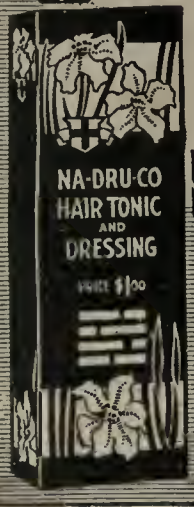
you must care for it. If dandruff is present, first eliminate it by using Na-Dru-Co Dandruff Eradicator for three or four weeks, then tone up the scalp with

NA-DRU-CO Hair Tonic and Dressing

This valuable preparation is absolutely free from coloring matter, or from any chemical that can affect the color of the hair in any way. Its daily use is a pleasure that is as beneficial as it is refreshing.



Na-Dru-Co Hair Tonic and Dressing and Na-Dru-Co Dandruff Eradicator are put up in 50c. and $1.00 bottles. Ask your Druggist for them.

National Drug and Chemical Co., of Canada, Limited

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Gives a Quick, Brilliant Polish That Lasts

Easier to Use Better for the Shoes

No Turpentine

REINDEER FLOUR

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The Flour with Strength, Sweetness and Reliability. The pride of it's makers

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He is only two years and a half old, but he's already getting more work from the Dominion than any clock alive.

In two years and a half time, 6,000 Canadian dealers have adopted him. Nearly half of the families in Canada leave it to him to call them up in the morning; nearly half the families in Canada use him all day long to tell the right time by. He is really two good clocks in one—a crackerjack of a timekeeper and a crackerjack of an alarm.

Big Ben stands seven inches tall. He is triple nickel-plated and wears an inner vest of steel that insures him for life. His big, bold figures and hands are easy to read in the dim morning light. His large, comfortable keys almost wind themselves. He rings *five minutes steadily or ten intermittently*. If he is oiled every other year, there is no telling how long he will last.

Big Ben's price is $3.00 anywhere in Canada. If you cannot find him at your dealer's, a money order sent to *Westclox, La Salle, Illinois*, will bring him to you, carefully packed and duty charges paid.

BIG BEN

Fruit Machinery Co.

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POWER SPRAYERS

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Apple Evaporating Machinery.

Installing Power Evaporators a Specialty

When you see our

Ontario Sprayer

or

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In operation you will become their lasting friend. They stand out in a class by themselves.

Write for our valuable illustrated catalogue on Spraying and Evaporating.

INGERSOLL, ONT.

may fluctuate there is no reason why we may not look to an average of a dollar a box. Twelve years ago, the prices of box fruit were considerably lower than they are now.

"There are many problems to solve in the marketing of our increasing crops; but they can all be overcome by our own efforts, ability and energy. We can all well afford to be entirely sanguine as to the ultimate and enduring success of our fruit industry."

More About Fertilizers

Editor, The Canadian Horticulturist,—I have followed with interest the various articles on fertilizers and their value which have been published from time to time in The Canadian Horticulturist. It appears to me that Dr. Dandeno, of Bowmanville, makes some very erroneous and misleading deductions in conection with the value of these materials. I have recently been reading the report of tests conducted by Dr. B. N. Kilgore, State Chemist and Director of Test Farms, North Carolina, Department of Agriculture, and feel sure that if your readers will study the results obtained they will need no further evidence as to who has been right in the controversy in which Dr. Dandeno has taken part. It was clearly shown that, when no fertilizer was used on an acre of ground one hundred and seventy-six decimal six pounds of seed cotton were produced, with no profit to that grower.

With two hundred pounds of commercial fertilizer used per acre six hundred and fifty-six pounds of seed cotton were produced, with a profit of sixteen dollars an acre, a profit of eight dollars per hundred pounds of fertilizer used, after the fertilizer was paid for.

When six hundred pounds of fertilizer was used, one thousand and eight decimal nine pounds of seed cotton were produced, a profit of thirty-two dollars an acre. From this test it was shown that the average profit from the use of fertilizer was five dollars and sixty-three cents a hundred pounds of fertilizer, after paying for the fertilizer.

The fertilizer in this case, therefore, not only paid for itself, but paid a handsome profit on the investment besides. The main difference between commercial fertilizers and barnyard manure is "bulk"—a ton of fertilizer will, as a rule, contain as much plant food as twenty-five tons of barnyard manure. What I would advise the farmers to do is to go to some reliable manufacturer of high-grade fertilizers, buy a few hundred pounds of high-grade material, and do a little experimenting for himself.

Dr. Dandeno condemns the use of fertilizers, but offers no remedy for poor crops. If Dr. Dandeno would do some experimenting himself with the kind of packing house fertilizer I am familiar with, I feel confident that the results would be so convincing, that even he would acknowledge that after all Mr. Innes evidently knew what he was talking about when he recommended their general use. It is results that count, and so long as commercial fertilizers continue to give the farmers as liberal returns as they have in the past, farmers will, and wisely so, continue to use them as liberally as possible.

This article is not being paid for by any packing house, nor by the line or column. It is an expression of ideas which are actual results from the use of packing house commercial fertilizer.—B. Leland, Toronto, Ont.

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TRADE MARK

Seeds that Grow Good Crops

McDONALD'S TESTED SEEDS are strong, vigorous and true to name. We make sure they inherit these qualities before sending them out. Thousands of the most careful farmers and Gardeners of Canada have come to regard our trade mark as the surest possible guarantee of quality in seeds.

Write for our finely illustrated catalogue. Mailed Free. It tells all about the seeds, which by simple crop-producing merit, have gained and retained the confidence of critical Canadian growers.

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Apple Trees, No. 1, Baldwin, Spy, McIntosh, &c., $30 per 100.

Cherry, Pear and Plum Trees, No. 1, $30 per 100.

Roses, 2 year No. 1, all kinds, 25c, five for $1.

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5000 Cuthbert Rasp., No. 1, $7 per 1000.

Peach and Quince Trees, Grape Vines, Currants, Gooseberries, Asparagus, Rhubarb, Dahlias, Paeonies, Gladiolus, &c., at attractive prices.

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The Canadian Horticulturist

Vol. XXXVI JUNE, 1913 No. 6

Cultural Studies on the Montreal Market Muskmelon*

Prof. Wm. Stuart, Burlington, Vt.

THE commercial culture of the Montreal melon is confined almost wholly to a small group of growers near Montreal, Canada. While a large proportion of these melons are marketed in Boston, New York, Philadelphia and other large eastern United States cities at extremely remunerative prices, practically no effort is being made by United States gardeners to meet this demand. Notwithstanding the fact that the Montreal growers have for the past few years received from ten to eighteen dollars a dozen wholesale for their melons, they have not as yet succeeded in supplying the demand. The writer was informed five years ago by one of the best growers that he had a ten year contract with a leading New York City hotel, which agreed to take every first class melon he raised. This particular case is cited in order to disclose the keen demand which exists among high-class hotels and restaurants for this variety of melon during the season in which it is on the market.

The high prices which these melons command and their restricted production notwithstanding the high prices, are doubtless due to the fact that greater skill is demanded and closer attention to detail is necessary to success than when other varieties are grown. Furthermore, glass sash and frames are needed. Then, again, the Montreal grower confidently believes that this particular sort of melon can be successfully grown only on certain types of soil on the island of Montreal. This belief seems to have this much basis in fact, that while occasionally grown elsewhere high flavored melons have not commonly been produced save by Montreal growers; indeed, flavor has usually been lacking.

The crop is a remunerative one, when conditions favor. From $1,500 to $2,500 per acre are not unusual returns. Blair estimates an average crop at $2,250 per acre, with operating expenses, including interest on investment and depreciation, of $890. One grower informed the writer that his average sales from seven to eight acres was in the vicinity of $16,000.

CULTURAL METHODS

Briefly stated the cultural methods employed by the Montreal growers are essentially as follows: The seed is sown in seedbeds or pots, in the greenhouse or hotbed, any time from the latter part of February to the first of April. When the seedlings of the earlier sowings are large enough they are potted up into three or four inch pots, and, in the case of extremely early plantings, are again shifted into fives' and sixes'. Whenever these plants are in danger of suffering for lack of root space and plant food and the weather is favorable they are planted out in the sash-covered frames under which they are expected to remain until they are almost fully grown. The writer was informed by one of the largest and most successful growers that he planted seed for his first crop in the latter part of February or first of March.

The hotbeds in which these early plants are started must of necessity be well constructed, and in addition must be so located as to be well exposed to the sun's rays and at the same time protected from cold winds. This grower in addition to having well constructed hotbeds, covers his frames with two sets of sash, mats, and board shutters. With such protection, if sufficient horse manure has been used in the hotbed to generate a steady and fairly strong bottom heat and the exposed portions of the frame are banked with the same material, plants may be grown almost as well as in a more expensive structure supplied with fire heat. In fact, most of the growers seem to be strongly prejudiced against the use of plants started in an artificially heated greenhouse structure, claiming that plants so started never give as satisfactory results as do those which have been grown in the hotbed. To the writer this prejudice seems to be ill founded. At least, no good reason suggests itself why greenhouse grown plants, if properly handled, should not make satisfactory growth when transplanted into the soil of the frames in which they are to be grown.

The frames into which the melons are transplanted are movable ones, usually in sections of approximately twelve feet in length by six feet in width. For the early crops they are made strong and tight with the rails for each sash to slide upon.

The soil over which these sections are

A Manure Trench as Prepared for the Growth of Montreal Muskmelons

*Extract from Bulletin No. 169, of the Vermont Agricultural Experiment Station, Burlington, Vt.

A Line of Frames Showing Method of Cultivation

set is ridged up in beds of from twelve to sixteen feet in width, having a centre elevation of possibly one foot. Along the centres of these ridges, where the sectional frames are to be placed, a trench is dug about two feet in width and from fifteen to eighteen inches or more in depth, depending on the earliness of the season. This trench is filled almost level with the surface with well-fermenting manure, and a portion of the surface excavated soil thrown back over the manure, slightly more being drawn in where the plants are to be set. The frames are then set in place and covered with sash, which in turn are further reinforced with mats and wooden shutters, or hay or straw with or without the shutters. A space of from four to six feet is allowed between the ends of each sectional frame.

When the soil over the manure is well warmed up everything is in readiness to plant. The warmest portion of some favorable day is selected for the purpose and great care is exercised in transferring the plants from the hotbeds to their permanent quarters in order to guard against the possibility of their receiving a setback by sudden changes of temperature or soil conditions. Unlike the transferring of most plants to their permanent place of growth, the coddling process does not cease with this type of melon. In fact it is simply spread over a greater area and in a measure the plants require even greater attention than before, for as the sun gets stronger, greater attention must be paid to watering, syringing and ventilation. Success at this stage in keeping the plant in a healthy, actively growing condition and free from insects is very largely dependent upon proper syringing and airing. On bright sunshiny days frequent syringing of the soil under the sash enables the grower to maintain a somewhat higher temperature without incurring the risk of an invasion of red spider or thrips.

As the fruit attains some size, and especially as it begins to reach full development, it is usually kept from contact with the soil by placing it on a shingle, piece of board, or flat stone. Uniform shape, color, netting, and ripening is secured by turning the fruit every few days. Much loss from cracking, rot, etc., is thus avoided. Pinching out the central shoot of the plant, while not absolutely essential to success, is usually practised. When the runners or shoots are fairly occupying the enclosed area, the sectional frames are raised a few inches above the bed, thus allowing the shoots access to the surrounding unoccupied land. As the weather grows warmer and the summer advances, more and more air is admitted to the frames until, finally, the sash and then the frames themselves are entirely removed. This does not usually occur until the melons are almost fully grown.

As each fruit sets, the shoot on which it is borne is pinched off one or two joints beyond it. A crop of from fifteen to twenty melons is considered sufficient from each six by twelve feet sectional frame. In this area from three to four hills are planted, depending on whether a three by six feet or four by six feet sash is used. Usually two plants are set per hill.

SIZE OF MELONS

As in most crops of like nature the melons vary greatly in size. The writer was informed by one commission house that it had purchased a melon weighing forty-four pounds; and he personally saw one weighing twenty-two pounds which had been selected by the grower for seed purposes. The average weight of number one melons ranges from eight to fifteen pounds, with a mean weight of about ten pounds; that is to say, a dozen melons, packed for shipment, will weigh on an average from one hundred and twenty to one hundred and thirty pounds. In exceptional cases some have been shipped weighing two hundred and forty pounds per dozen package.. As a rule the larger melons, those weighing twenty pounds and upwards, do not possess the quality of a perfect specimen weighing from eight to fifteen pounds.

Picking Strawberries

Grant S. Peart, Burlington, Ont.

Strawberries keep much longer if picked with their stems left on. The old-fashioned method was to pull the berries, but it has been found that one can pick them as quickly by pinching the stems with the thumb nail. There has been considerable talk about precooking berries before sending them to market. We cannot see that this would pay in the case of our local markets, but doubtless it would be of immense value were we shipping to any great distance.

At what stage of ripening should we pick strawberries? is the next question. We cannot set any hard and fast rule. We believe in allowing the fruit to mature as much as possible. However, we cater more or less to market requirements. Some demand fully matured berries. Toronto will not accept strawberries unless red all over. In the case of Montreal we are required to pick a little on the green side on account of extra distance, and Montrealers are not so particular as to draw the line at partially green berries. At all events the patch should be picked over so often that no fruit becomes soft.

Enemies of the Strawberry

W. A. Dier, Ottawa

One of the enemies to which the strawberry is subject is the white grub. It is the larva of the May beetle. The grub when fully grown is about an inch and a half long and three-eighths of an inch thick, nearly white, with a brown head. They are usually more numerous in old pastures and meadows than elsewhere, because their principal food is the roots of different kinds of grass.

The old sods offer protection against birds which devour them. Therefore it is not safe to plant strawberries in newly plowed sod. It is better to occupy the ground with some crop which requires considerable hoeing and cultivation for at least two years before planting to strawberries. This gives the birds a chance to clear the ground of this pest.

Birds themselves are exceedingly troublesome to the small grower during the fruiting season, and they seem to be decidedly partial to the finest specimens. On the first sign of ripening, I place pieces of newspaper under the clusters to protect them from the bugs in the ground and inverted strawberry boxes on top to protect them from the birds. In this way only could I save my best berries. It means work, but one always feels well repaid for the extra labor which this protection involves.

The small grower can usually supply water during dry weather, and it should never be withheld if it is possible to apply it. A good soaking twice a week in the evening is far better than a sprinkling every day.

The Roadside Problem

Prof. E. M. Straight, Maine A. C., formerly of Macdonald College, Que.

A FEW days ago I cut a fairly representative twig from a wild cherry tree in the town of South Portland, Me. It was a roadside specimen, gnarled, broken, and growing in the gutter. The illustration shows that the twig contained six egg masses of the tent caterpillar, two nests of the brown-tail moth, one fire-blight, and one black-knot. Thousands of dollars are being spent year by year in trying to rid the orchards in the vicinity of the dreaded brown-tail moth and other pests. Best results here or elsewhere need never be hoped for so long as the roadsides are allowed to remain the common breeding ground of all enemies of the farm and garden.

The nest to the right appeared like that shown in the second illustration, after being kept in the office for a few days. It will be seen that there are two or three hundred caterpillars crawling on the outside of the nest. Egg-masses of the forest-tent or the American caterpillar contain two or three hundred eggs. We may only guess at the number of spores produced by that knot and blight. Certainly that twig possesses mighty potentialities inimical to the best interests of the orchardist this coming season.

When attempts are made to clean up the roadsides, it has amused us to note the care taken to save the bush, even if necessary to completely dehorn it. If the axe were laid at the root of the tree it would be the easiest and most satisfactory form of solution.

The caterpillar of the brown-tail moth has, when young, the "spinning down" habit, and is transported by vehicles and pedestrians. New centres of infestation may be set up thus, many miles from the original.

Weeds in the roadside fence corners, borers in the fence poles, and caterpillars on wayside bushes form a combination not short of a menace to the farm community.

When the farmer accepts the roadside problem as his own, and cleans it up he will strike a blow at insect pests and fungous diseases which will eventually count for much on the cultivated areas of the farm. Governments and municipalities cannot be expected to do the work. It is the farmer's problem, and not until the farmer accepts the road passing through his farm as a part of his farm will the problem be solved.

When the winter approaches the farmer draws a long breath. He feels that for a few months at least he may relax his efforts. Insect injury is about over for the time, but efforts toward insect control should never cease. When trees are bare and insects dormant much may be done. Mechanical methods of killing insects must not be neglected. It must be evident that a man can do more effectual work on the twig in the illustration mechanically now than by waiting and applying any amount of poisoned sprays later.

An apple-twig borer may be cut out, scales on a tree trunk may be scraped off, and a thousand other little devices attended to, which accomplish the work sought quickly and effectually.

Roadside Trees Like These are a Menace to the Fruit Industry

This illustration, secured by Prof. E. M. Straight, of a wild cherry tree shows six egg masses of the tent caterpillar, two nests of the brown tail moth, one fire-blight and one black knot.

A Nest of the Tent Caterpillar

Methods Which Have Won Success

R. S. Duncan, B. S. A., Port Hope, Ont.

Mr. G. H. Martyn and Son, fruit growers, of Fairview Farm, Port Hope, have demonstrated what can be done in the way of successful farming. Twelve years ago, Mr. Martyn bought his present farm, which was then practically abandoned. The buildings were almost a complete wreck. To-day the farm is one of the most complete to be found in Ontario, the buildings have been remodelled, the land is in a high state of cultivation, and eight to nine acres of new orchard have been planted, making a total of thirteen to fourteen acres in all. Mr. Martyn attributes his

Orchard and Apiary of C. H. Martin & Son, Port Hope, Ont. (See accompanying article)

success largely to the fact that he has been specializing; his three special lines being the orchard, the apiary, and early potatoes.

Every spring Mr. Martyn begins the season with thirty to forty colonies of bees. On these he clears one hundred to two hundred dollars annually. There is no disease in his hives, and they require comparatively little work for the returns received.

There are eight to nine acres of orchard coming into bearing. Four acres were planted in the spring of 1912 and there were from two to three acres already planted when the farm was bought. The trees are set thirty feet apart each way. Last year the orchard produced in the neighborhood of three hundred barrels. The varieties planted in the young orchard are Spy, McIntosh, and Snow, Baldwin, Stark, Ben Davis, and Gano. The trees are cared for according to the best orchard practices. Complete spraying methods are practised—the lime-sulphur being made on the farm.

The orchard is carefully pruned, fertilized, and worked. Between the rows Mr. Martyn follows the practice of growing various crops, mainly cultivated crops, such as mangels, corn, and potatoes. These crops in addition to keeping the orchard clean, help to pay for the outlay expended in planting. Three-quarters of an acre is also devoted to strawberries each year. The earlier varieties are grown, and although somewhat low yielders they bring high prices. Last year about two thousand boxes were sold for approximately one hundred and ninety-five dollars.

For seven years potatoes have proved a great source of revenue. Mr. Martyn grows the early varieties chiefly, and never has enough to supply the demand, receiving high prices for his crop. Consistent spraying is practised with this crop. Last year, although blight was very bad in the district, sprayng practically saved Mr. Martyn's entire crop. His success shows the advantage of specialization.

Winter vs. Summer Pruning

By Dr. C. D. Jarvis, Conn. Agr'l College, Formerly of the Guelph Agricultural College

(Continued from May issue)

For assistance in the preparation of this paper, I have appealed to some of the best authorities in this country and in Canada. Personal letters were sent to twenty-four different people, mostly college and experiment station horticulturists. Twenty-two replies were received. While these replies brought out many conflicting statements with regard to the time and method of doing the work, they mostly agree that there is a place for summer pruning in our orchard practice. Extracts from some of these letters may be of interest here:

Professor M. B. Cummings, of the University of Vermont, writes: "In general, I am very much inclined to believe that much of our pruning is best done in the summer time, and if annual attention is given this matter, very little of the severe winter pruning will be required. I think the taking out of the laterals where the crown is too thick and pinching out the terminal buds will tend to hold the tree in check and shape it up better for the permanent stocky branches."

Professor U. P. Hedrick, of the New York Agr. Expt. Station: "We have several dwarf orchards in different parts of this state. We have done some pruning in these orchards every season for the past seven years, the time ranging from the middle of July to the end of September. As yet, we have found no time in the summer in which trees can be pruned to advantage in this state. If the work is done early in the season the weak, succulent growth which is nearly always winter-killed follows. If the work is done late in the season, the effects of pruning do not differ from those obtained by winter pruning. We have about concluded that summer pruning is wholly unsuccessful for this climate. At least, it is in the average season, under average conditions, and in the hands of the average fruit grower." Prof. Hedrick's opinion seems to be based upon the behavior of dwarf trees only.

Professor C. A. McCue, Delaware State College: "I am a firm believer in this method of handling trees and I believe that in the past we have done altogether too much winter pruning on peach and apple trees. Of course, summer pruning can be overdone, and if care is not used and proper judgment exercised, a tree may be seriously injured by pruning during the summer season."

CONCLUSIONS AND RECOMMENDATIONS

I believe that with young trees we should do very little winter pruning, and that we should direct the growth largely by summer pruning. The work to be most effective should be done a little each year and at just about the time the tree completes its annual growth, which in this section is about the first week in July. If done too early it will defeat its aim and produce a strong growth of shoots. If done too late, it forces out a soft growth which is likely to be winter-killed. The object of the work at first should be to direct the growth and later to induce fruitfulness. Only strong growing trees should be pruned during the growing season, remembering that it is a devitalizing operation and may easily be overdone.

With regard to bearing apple trees the necessity for summer pruning is less pronounced if not entirely eliminated. Since our mature trees tend to overbear there is no necessity for inducing fruitfulness, and winter pruning would therefore be the most logical practice. The problem is an intricate one, and since there is so much difference in the character of soils and the behavior of varieties, it is going to be difficult, if not impossible, to formulate any set of rules that any fruit grower may safely follow. The physiologist in time may be able to reveal the underlying principles in connection with the work of pruning, but the problem always will be a local one, and the details relating to the practical aplication of the principles must be worked out by each fruit grower.

A Garden of Perennials

George Simpson, Ottawa, Ont.

THE establishment of a perennial and shrubbery border, which will increase in beauty from year to year, offers no obstacles to the garden-maker if he goes about it systematically and lays the foundation in the way that experience has shown to be necessary to ensure success. Many people who have a natural fondness for flowers—and who has not?—hesitate about making the attempt from an apprehension of failure because of the supposed difficulties of the undertaking—difficulties which will, for the most part, be found to be imaginary. The activities of horticultural societies and the dissemination of information in popular form by such publications as The Canadian Horticulturist, have done much to simplify the matter and to encourage garden making in its more permanent and effective forms. The gardener will probably look upon the adornment of his home grounds from the aesthetic point of view, but there is an economic aspect to the question, and garden working is receiving a tremendous stimulus from the realization by communities and municipal authorities that the city beautiful is an asset of great material value, and that it is poor business to encourage or tolerate civic untidiness. Good citizenship and gardening go hand in hand.

The views here shown are taken from the garden of the writer on Clemow Avenue, Ottawa, a neighborhood in which are found many excellent gardens and enthusiastic gardeners. It is rather a prosaic story, but a few facts explanatory of the steps which were taken in the making of the garden may interest someone. Before any real gardening work could be done it was necesary to remove the second growth trees and stumps from the site, a task which called for the assistance of horses and men. Beyond this preliminary help the garden is entirely the product of the owner's individual efforts, and if the work has been his, so has the pleasure.

Shrubs and Vines at the Front of Mr. Simpson's Residence

Before the actual work of preparing the ground was commenced a plan was drawn to scale and every permanent feature of the garden to be was definitely located, having reference to both immediate and future effects. In the main this sketch was followed in laying out the garden but, as the effect of the arrangement became apparent with the growth of the plants, extensions and modifications took place. Preference will usually be given in garden planning to gracefully curving lines but limitations of space in this case restricted the design to the rectangular. Continuity of bloom, harmony of color, gracefulness of form, fragrance and permanency are essential elements in any satisfactory design for the planting of the home grounds, and an effort was made to give due weight to these considerations.

The plan having been worked out, at least tentatively, the actual work of preparing the ground for planting began. Remembering that the borders were to support deep rooting shrubs and hungry perennials, and that liberal treatment is the only guarantee of vigorous growth and generous bloom, the work

The South Border, showing Sweet William, Canterbury Bells and Delphinium

The South Border—Prepared for Fall Bloom

Sweet Williams have been removed and replaced by asters and annual larkspur for fall bloom. Canterbury Bells, phlox and hollyhocks are now showing. Note how the ugly poles on the street tend to counteract the garden effect.

was done with considerable thoroughness. All clay, sand and stones deposited on the surface when the house excavation was made, were removed and replaced by a suitable staple after which the whole was trenched and heavily manured to a depth of three feet, allowance being made for settlement. The actual work of planting was greatly simplified by the plan, a reference to which and the numbered list attached to it, showed exactly where each plant should stand. The principal border which frames the back lawn on three sides, is ten feet wide, and has a length of one hundred and fifty feet. A narrower border surrounds the house, and generous planting of annuals and perennials screen the kitchen garden at the rear of the side lawn.

The background of the main border was formed by setting at suitable distances such hardy shrubs as lilacs of the newer sorts, Rugosea roses, hydrangeas, spiraeas, honeysuckles, Japanese snow balls, mock oranges, and a couple of conifers for winter effect. Experience has shown it possible, in an area of limited extent, to produce a satisfactory effect with scarcely more than a dozen different perennial plants, and those who are garden-wise agree that strong masses of harmonizing color are preferable to a great variety of scattered bloom. In this instance the natural desire of the amateur to exploit the long lists of perennials in the catalogues, has been placed under a severe restraint, and preference has been given to a limited number of the old favorites, which under suitable conditions, can be relied upon to keep the garden attractive throughout the season.

With the limited resources and space at the command of the average gardener it is scarcely possible to have the perennial borders completely furnished with bloom at all times, but with the exercise of a little forethought, that condition can be approximated and it is easily possible to have some conspicuous feature in natural and regular sequence from the opening of the lesser bulbous flowers of early spring until the last Michaelmas daisy has succumbed to the chilly blasts of the grey November days.

With the first warm, sunny days of spring the snowdrops, crocus and hepaticas start into bloom. This is the beginning of the pageant of color which sweeps onward in ever changing succession to the end. The borders have been liberally planted with early and May-blooming tulips, daffodils and narcissi, groups of which have been placed in almost every vacant space, and these bulbs make a brilliant display at a season when after the long winter abstinence we are hungry for a flash of color, such as these present. The late tulips with their stately form and fine color, prolong the show well into June, when the same is taken in hand by the German irises, lilacs, peonies, and honeysuckles. Then follow in succession the columbines, Oriental poppies, sweet William, Canterbury bells, delphiniums, Japanese irises, phloxes (a host in themselves), hollyhocks, lilies, and last but not least, the permanent asters, with their soft blues, mauves and pinks.

The vines used for the walls of the house are Ampelopsis Engelmanii and Veitchii, both of which have given satisfaction, although the latter has not proved quite hardy in some exposures in this locality. Ampelopsis Engelmanii is

The East Border of Mr. Simpson's Garden

Tulips, iris, ornamental poppies and peonies being over, this illustration shows the phlox coming into bloom.

A Division Hedge of Hydrangea Paniculata, grown by Mr. Simpson

perfectly suited to this climate, clings loosely and colors beautifully in the autumn. The foliage of these climbers serves as a good background for crimson rambler roses, clematis and climbing honeysuckle.

The planting of shrubbery about the foundation modifies the abruptness of the angle between the ground and the wall of the house and also serves as a foil for flowering plants, annuals and perennials, set in front. Asters look especially well in such a situation, and annual larkspurs are desirable, not only because of their intrinsic beauty but also because of their persistence into late fall.

A few shrrubs, such as Berberis, Thunbergia, the spiraeas and conifers, have been planted in the outskirts of the lawn, and a hedge of hydrangea Paniculata Grandiflora marks the boundary between this and the adjoining property.

One of the really good things about gardening is that the gardener is never satisfied with what he has accomplished. For this reason gardening possesses an inexhaustible store of future pleasures, with almost limitless possibilities in the way of achievement as experience begets knowledge and knowledge ambition. The ideas of the gardener develops his vision, expands his taste, improves his methods, and the result is a nearer approach to that standard of excellence towards which every true garden maker is striving.

The June Garden

R. S. Rose, Peterborough, Ont.

ALL seeding now should be done, and the seedlings showing up. This is the time to thin them out to about an inch apart each way. Some may say that an inch is not enough. Of course, in some plants more space is desired. I only know that I for one love to see the earth altogether covered and have always had splendid results.

Keep turning the earth over with a small spade; one such as the children use I find a good tool to have. Weeding will be much easier and your plants much healthier.

INSECT ENEMIES

Prepare some kind of emulsion which can be used on the tender shoots. I generally start spraying with soap chips dissolved in a gallon of water (one laundry bar cut fine). I do this before any insects appear. It is wiser to do this than to wait until they come; for once the aphids take possession of the young shoots they are hard to dislodge. This insect multiplies extremely rapidly, and prevention is better than cure. If the aphids do come (and they surely will) after using soap chips and water, add a cupful of coal oil to the gallon.

For those who do not know the aphids, I will call him the little green fly that sonces on the stalks and young leaves, especially on rose bushes and sweet peas. There are also numbers of other insects, almost too numerous to mention, that come with the hot weather. Some of them one can hardly see with the naked eye, but you can tell their presence by the leaves, as white or brown spots will show on the surface of the leaf. Look for your trouble underneath, then spray so that the emulsion will go on the under side of the leaf and on the stalks.

THE CARE OF ROSES

This is the rose season, so give them all the attention possible. I have been frequently asked what to do for them. In the first place see that you have good rich soil and that they get lots of sun. Shelter them from the north winds. Keep the earth loose and give them once a week a mulching of liquid manure. The rose will not bloom so freely if planted with other shrubs, as they are very shy. The rose is a very gross feeder. When the aphids appear on the rose bushes, I always use a much stronger emulsion for them, namely one cake of laundry soap shaved fine into one gallon of water. When dissolved add two gallons of kerosene oil. When spraying, do not let the emulsion go on the buds, as it is apt to hurt them.

Twice a week I give the bushes a thorough washing with the hose held close to the leaves so as to give them the full force of the water. This helps to keep down the pests, and the rose itself likes plenty of water.

The kind that give me the most satisfaction are as follows, grown on their own roots: General Jacqueminot, scarlet crimson; Madame Plantier, white; Mrs. John Laing, pink; Soliel D'Or, yellow; Paul Neyron, dark rose; Prince Camille de Rohen, crimson maroon; Acura de Diesbach; pink; Lady Helen Stewart, crimson scarlet; Harrison's Yellow, golden yellow; Margaret Dickson,white; Persian Yellow, bright yellow; all hybrid perpetual or remontant roses.

Another insect, which appears on the Golden Glow, is a little red fly that attacks the stock in the shady part near the blossom and under the foliage. I have had this insect attack my Golden Glow so severely that I have had to take a soft substance and scrape them off into a pan and burn them in the kitchen range. Powder is no good to destroy the aphid or these red insects, so do not try it. Do not skimp the watering of the garden, but water thoroughly. A light sprinkling, which only covers the surface of the earth and does not soak into the roots of the plants, is worse than no watering at all. I have always found it much better to give the beds a good soaking three times a week in the evening, than a light sprinkling every day. Some might ask, why the evening and not the morning? I prefer the evening for this reason, that the water has a chance to soak in during the night, giving the plants plenty of

A Rose Border in the Garden of Mr. Wm. Coats, Goderich, Ont.

time to drink it. In the morning the sun gets up early, and dries the moisture before the plants have had time to take in all that they require. Then again, you have in the early morning more light to see to do your weeding than you possibly can in the dim light of the evening, especially in the early part of the autumn. Then the earth is softer and more easily worked after a night's watering, than it would be after a hot baking sun.

I cannot say this often enough: Keep the earth loose. Run the trowel through it, around the plants. In other words, keep stirring the earth and you will keep down the weeds, for there is one thing you can depend upon to grow without care if you have good rich garden soil, and that is weeds.

An uncared for garden is an eye-sore to anyone who loves flowers. A little care, every morning and evening, will net you results that will surprise you, so give it to the garden. All flowers like to be loved, petted and cared for.

If you have paths in your garden keep them clean and well swept, as a well kept path shows the garden off to much better advantage. I know that a garden to look well means work, which takes up time and strength. Give it that, give it a little thought, give it a little attention, give it a little care, give it a little love, give it a little of your time, such as an hour each morning before breakfast, and an hour each evening after supper, and the result will not be little but will be large.

Rose Culture

By an Amateur

SO much has been written on this subject that one cannot expect tc say anything new; the most one can hope to do is to point out the chief causes of failure on the part of beginners, to accentuate the few essentials to success, and incidentally remove the impression that to succeed with roses requires extraordinary skill and entails a vast amount of labor.

The chief causes of failure are the choice of the wrong sort of plants and improper planting. As long as people will persist in buying roses which are sold at the rate of fifteen or twenty for a dollar, so long will the percentage of failures be high. These plants suffer a three-fold shock, the shock which every growing plant suffers when it is transplanted, the additional shock which it receives in having all the soil washed off its roots in order to lessen postal charges, and the further shock in being transferred from greenhouse temperature to that of the open ground. Only a small proportion survive this treatment, whereas if only two years old dormant budded plants are used and these properly planted, very few will fail to grow, because they are in the very best possible condition for transplanting.

The proper method of planting is to dig a hole sufficiently large to accommodate the roots, spread out in their natural manner of growth, which is horizontally. In shipping, they are usually compressed until they appear to be in a straight line with the branches, but this is not their natural form. They should be set so that the junction of the bud with the stock is from two to three inches below the level of the ground. This prevents to a large extent the growth of suckers from the stock. If any such appear they must be at once removed, as they will otherwise very quickly crowd out the valuable rose. Fortunately these suckers are readily recognized by their lighter green color, and by their having seven leaflets on each petrole, whereas the greater part of the valuable roses have only five.

In planting, it is necessary to see that every part of the root comes in contact with the moist earth so that they should be set as firmly as a post. If the earth is very dry some water should be used when the hole is partly filled and allowed to drain off before the filling in is completed. Immediately after planting, the bush should be pruned and about two-thirds of the wood removed, leaving the plants about eight inches high. This is absolutely necessary, because in removing the plant, no matter how carefully it has been done, the most of the small fibrous roots have been broken and no growth will be made until these have formed again, and until then there is nothing to support the growth of the top. The removal of the top forces into growth the strongest buds, which are nearest the base of the plant.

After pruning, rake over the surface

The O. A. C. Rose Garden

A partial view of the Rose Garden at the Guelph Agricultural College, is here shown. Mr. Wm. Hunt, the well-known contributor to The Canadian Horticulturist, may be seen in the foregronnd.

soil to form a dust mulch, which conserves the moisture. Frequent stirring of the soil, especially after rains, will provide all the moisture necessary, except in a particularly dry season. The essentials to success are first a genuine love for the flower itself, and secondly, a suitable location for the rose bed.

Roses require and must have full sunshine for the greater part of the day; if somewhat shaded from the hot afternoon sun the blooms will remain in good condition longer than if fully exposed. If shaded from the morning sun you will have a better opportunity for seeing your roses at their best, which is when covered with dew in the early morning.

Peonies and Trio Germanica in Garden of J. R. Thompson, Hamilton, Ont.

Transplanting Garden Annuals

P. D. Powe, Cainsville, Ont.

June is by far the most important month in the year in the flower garden, for if we are to have success we must give the plants the best of attention. This is the month the plants make their growth and much of the transplanting, thinning and cultivation is done now.

Transplanting and thinning are very important matters that must not be neglected. The boxes which we have started will need our first attention. When the seeds are well up, having made their first or second pair of leaves, they are best transplanted either into their blooming quarters or into another box. Set them in the garden from six inches to two feet apart. A good plan to go by is the height plants will attain when full grown. Divide this by half, and you have the distance apart to place the plants. If it is too early to plant out take another box, fill it with good soil, and place the plants three inches apart each way in it. This gives sufficient space and you get strong plants. Plants that will not succeed when transplanted must be sown thinly out of doors. When they are well up thin them out to the right distance apart. It is cheapest for the city grower to buy plants that he cannot grow in the garden, from some florist. By so doing you get the benefit of the florist's years of training, and up-to-date facilities.

The best time to thin or set out plants is before seven in the morning and after five in the afternoon. If the work is done in the morning cover the plants with papers so as to protect them from the sun's rays. By neglecting to do this you may lose your whole stock. Water should be given in the evening only, except in the spring when the morning is the best, as the plants will not then receive a chill, which might retard them.

THE CARE OF THE PLANTS

When the plants are well started, the surface of the bed should be frequently worked with a small hoe, cultivator or weeder, not only to keep the beds free from weeds, but also to encourage the plants to grow by keeping the soil loose and friable around them. This cannot be done too often. If done twice a week you will obtain fifty per cent. better plants and bloom.

During dry periods the plants should be given water when the sun is down. This watering should be done well. Let the water soak right into the roots. Surface water does plants more injury than good. After watering stir the soil well to prevent caking or crusting of the soil. In dry weather, when water is scarce, lawn clippings are excellent to cover the surface of the bed with. They preserve the moisture and keep down the weeds, and also enhance the beauty of the bed.

Washing day is a great day with the housewife, and also with the garden if the wash water is only used right. Nothing helps flowers as much as soapy water so long as it does not contain lye or other strong acid to eat them. The soapy water contains a large amount of ammonia, animal fat, and other fertilizers and also has power to destroy all or most of the insect pests found on the plants and in the soil. Always keep dead leaves and flowers picked off as this not only makes the plants look better but prolongs the season of bloom.

Spraying to Destroy Dandelions

Prof. J. E. Howitt

Probably no weed attracts more attention at this time of the year than the homely dandelion. Everywhere lawns are to be seen yellow with this pest. Later, when the seeds are ripe, they are still more unsightly. Spudding dandelions from the lawn is a laborious and unprofitable task. Some easier and more effective method has long been looked for. During the past three years the Department of Botany has been trying experiments in spraying with a solution of iron sulphate to kill dandelions in the lawn. The results obtained are much more promising than those secured by some experimenters in the United States, and should be of interest to the readers of The Canadian Horticulturist.

Only last year's results are cited, but those of the two previous years are very similar, though the data are not so exact. In last year's trials a twenty per cent. solution of iron sulphate was used. This was prepared by dissolving two pounds of iron sulphate in each gallon of water. This solution was applied with a knapsack sprayer in the form of a fine spray just after the first few dandelions in the plots came into flower. Forty-eight hours after the application of the solution, the leaves of the dandelions were found to be blackened and burned. The burned and withered leaves were raked off and the plots left for about two weeks, when the dandelions were seen to be sending up new leaves. Another spraying was then given with the same results. A careful watch was kept on the plots, and it was found necessary to spray them six times during the season in order to prevent the leaves getting a start.

This spring the plots were closely observed and the results of last year's sprayings noted. Each plot contained one hundred and sixty-eight square feet. The dandelions in these sprayed plots and in the unsprayed check plot were counted. In plot number one there were one hundred and thirty dandelions; in plot number two, one hundred and forty-one dandelions; and in plot number three, ninety-one. In the check plot (unsprayed) there were approximately eight thousand four hundred dandelions. These figures show that over ninety-eight per cent. of the dandelions in the plots were destroyed by spraying six times with a twenty per cent. solution of iron sulphate. Some of our correspondents who sprayed their lawns last year with iron

sulphate, also report success. One gentleman writes as follows: "Having followed the instructions given to use sulphate of iron and water (two pounds of iron sulphate to a gallon of water), I am pleased to say that at least seventy-five per cent. of the dandelions have disappeared, and I am now going after the other twenty-five per cent."

In our experiments here no permanent harm was done to the grass. It looked blackened and discolored just after the spraying, but in a few days was as green as ever. This spring the grass is greener and more luxuriant on the sprayed plots than on the unsprayed plot. It is, however, noticeable that the White Dutch Clover has almost entirely disappeared from the sprayed plots. This we hope to replace by reseeding this spring.

GIVE SPRAYING A TRIAL

The results warrant giving spraying with iron sulphate a trial on lawns that are badly infested with dandelions. Prepare a twenty per cent. solution of iron sulphate by dissolving two pounds of iron sulphate in each gallon of water. Apply this solution with a hand sprayer or a watering can with a very fine rose. See that all the dandelions are thoroughly drenched with the solution. Rake off the blackened leaves two or three days after spraying and in dry weather, if possible, thoroughly water the lawn. Spray frequently enough during the season to prevent the dandelion leaves getting a start. Six applications at least will be necessary. Next season, in order to fill up the spaces caused by the destruction of the dandelions, reseed with pure lawn grass seed. Prepare the lawn for reseeding by raking it over with a coarse rake so as to stir the soil. Sow the seed when the ground is moist, rake it in well and roll. There is nothing like a good thick stand of grass to keep out dandelions and other weeds.

Spraying with iron sulphate is not very expensive. The iron sulphate may be obtained retail at from two to three cents a pound, or wholesale at a cent a pound. Forty pounds of iron sulphate, costing wholesale one cent a pound, will make twenty gallons of the solution, which is enough to spray at least one-eighth of an acre, so that if a lawn this size is sprayed six times during the season the cost for material will be only two dollars and forty cents if the iron sulphate is purchased wholesale

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After the cabbage worm enters the cabbage measures, such as the use of pads, or lime, or sand sprinkled with foul-smelling and repelling substances will fail to destroy the larvae. You must then use a carbolic emulsion, made by making a regular kerosene emulsion, and adding one-half pint of crude carbolic acid to each barrel of the material.

The Use of Lime on the Farm

Prof. E. M. Straight

NOT so many years ago lime was very popular with many farmers. Nearly every farm in some sections was limed. In the same sections at present, lime is not used. The popularity of lime did not prove that lime was profitably used in every case; nor the decline in its use that lime is no longer necessary. From the number of questions the writer receives concerning the use of lime it would seem that there is a revival of interest in lime and liming.

Such questions as "Which is the better fertilizer, lime or ashes?" or "What should I apply, lime or stable manure?" would indicate that the problem is not well understood. In some cases the press has been responsible for extending error regarding lime, by making statements such as the following: "Lime is Nature's best and most universal fertilizer."

IS NOT A FERTILIZER

Strictly speaking lime is not a fertilizer at all, and is not applied for such purposes, for lime always exists in soils in sufficient quantities to meet the immediate needs of the crops. Therefore, lime has no right to be compared with fertilizers. The situation has been aptly stated thus: "The use of lime without manure will make the farm and farmer poorer."

This is not intended to discourage the use of lime. Production is often doubled on a given area by its use through chemical, physical and biological action, but not on all soils. We learn, very slowly, that what is good for our neighbor's soil may not be good for our's. Iron is an excellent remedy for some human ills, yet no physician would recommend it for every man who is sick. Why, then, should lime be the panacea for all sick soils?

Lime is used with great benefit for a number of soil conditions, but not as a fertilizer. Many soils are sour. Especially is this true of poorly drained soils. Soils become sour largely from the formation of humic acid, caused by the breaking down of humus in the soil. Peat and muck soils are usually acid, as they are composed almost entirely of plant remains in some stage of decomposition. The character of the vegetation growing on a certain soil is some indication of its degree of acidity. Abundant growth of sorrel is a good indication of a sour soil, while the most of our cultivated crops make sickly growth or refuse to grow at all on such areas.

Applications of fertilizers to such a soil, before it has been sweetened, are of no avail. To sweeten or neutralize the acid present a base is necessary. Lime is one of the cheapest, most available, and best correcters of sour soils known, and is used for this purpose extensively.

Many of the constituents of plants, supplied in manures, are locked up in soils in the form of insoluble compounds. They constitute plant food, but plants are unable to use them. The function of lime is to unlock this food and make it available for plant growth. If plants take up this food, made available by the lime, it follows that such a soil would become constantly poorer, unless manure were supplied in sufficient quantities to meet the demands of the plant.

Heavy clay soils are improved by lime through the improved physical condition. Lime causes soil particles to flocculate, that is, to adhere to each other in minute bundles. The effect of liming such a soil is to cause it to behave afterwards as a coarse grained soil. It becomes more open, porous, less likely to bake and easy to work.

Lime favors the multiplication and activity of many forms of bacterial life, especially those that live in tubercles on roots of legumes. These bacteria are all important to the growth of the clovers, in that they have power to take up free nitrogen from the air. By favoring the growth of the bacteria through lime, we favor the growth of the clover. This effect has been noticed by many who have applied lime or ashes just before seeding with clover.

WHAT LIME DOES

Lime is applied to correct acidity; to make available plant food already in the soil; to improve physical conditions, and to favor the growth of certain soil bacteria. If soils are already right in these particulars, applications of lime cannot help them.

Lime is purchased for the farm under the names of quicklime, air-slaked lime, hydrated lime, ground limestone, and agricultural lime. All of these forms are of some use agriculturally, but the comparative value of any one form may be little or great.

If a soil is sour, quicklime or hydrated lime is the form that should be used. It being a base, acts quickly on the acid and neutralizes it. Other forms of lime cannot do this, for they are already neutral. The other effects of lime may be secured by lime in any form, if used in sufficient quantities. Quicklime plus air gives air-slaked lime; quicklime plus water gives hydrated lime, while agricultural lime may be almost anything—usually a mixture of air-slaked and water-slaked lime and sometimes a percentage of ashes.

It should be clear that if air-slaked or water-slaked lime is used, much larger quantities should be used than quicklime. It is seldom profitable for farmers to buy either air or water.

Modern Garden Tools Make Thorough Cultivation a Much More Simple Operation than Formerly

If fifty-six pounds of lime becomes water-slaked it will weigh seventy-four pounds, and if air-slaked it will weigh more. That is to say, fifty-six pounds of quicklime for agricultural purposes is worth about seventy-four pounds of water—slaked or hydrated lime; one hundred pounds of ground limestone or one hundred pounds of old air-slaked lime, if applied for other purposes than to neutralize or sweeten sour soils.

If quicklime, usually in lumps, has not been ground fine, it is better to water-slake it before trying to apply it. Enough water should be used to convert it to a dry powder and no more, for a sticky water-laden mass cannot be applied. The best time to apply lime is in the fall or early spring, at least some time should elapse between its application and a heavy application of fertilizer.

It is impossible to say how much lime should be applied to a certain area, for much depends upon the condition in which it is found. Market gardeners are very large users of lime, and for a reason. Where lime is used every five or six years, one or two tons per acre should be sufficient on most soils. This practice is to be recommended over very heavy applications once in a lifetime.

The points to be recommended are: Many soils need lime; lime is not a fertilizer; when lime is needed it is used with much profit; fertilizers cannot improve sour soils if said fertilizers are neutral or acid.

Growing Potatoes for Profitable Results

M. B. Davis, B.S.A., Manager Sunnyside Farm, Ltd., Ridgetown, N.S.

Good seed is the first essential in growing a profitable crop of potatoes. The seed for next season should be carefully selected from your own field if you have a good clean crop. Select the smoothest and most uniform tubers from heaviest yielding and healthiest plants in the field. These tubers will give you larger yields than those procured from the store at random. It pays to pay attention to this part of the potato business. In case, however, you have not been able to obtain seed which you know to be free from the potato scab, it is advisable to use preventive measures from the strat. The scab is a disease infecting the tubers of the potato plant, and a single scabby seed potato or even one which is clean but which has been in contact with a scabby one, may ruin a whole crop. The disease may perpetuate itself by remaining in the soil or it may be carried to new ground on a potato bearing the spores of the disease. It is not practical to sterilize or disinfect the soil, but it is practical and possible to do so with the tuber, and if the clean or disinfected seed is planted on new ground the disease may be controlled. To disinfect the seed, immerse them in mercuric bichloride (corrosive subliminate) for two or more hours, using one ounce of mercuric bichloride to eight gallons of water. Another effective method is to use formalin instead of the sublimate, one ounce of formalin to two gallons of water. This treatment of the seed, together with a judicious rotation of crops, is sufficient permanently to control this disease.

In cutting the seed, cut them to one or two eyes, leaving a large piece of tuber for the young sprouts to gain nourishment from until they are able to obtain some from the soil. If cut some time before planting, sprinkle a quantity of air-slaked lime over them.

Land which has been heavily manured the previous year is preferable for the potato crop. Commercial fertilizers have given excellent returns with the potato, but whether or not they can be used to advantage without the addition of some manure, depends on the texture and on the amount of humus contained in the soil. If your land has been previously well manured, so that it is light and friable, fertilizers alone will be best to use. The following is a good formula for potatoes: Two hundred and fifty pounds of nitrate of soda, three hundred and fifty pounds acid phosphate, and two hundred pounds of muriate of potash per acre.

The soil should be well prepared. Have the land in thorough shape before planting. By constant discing and harrowing you pulverize the soil, thus increasing the amount of surface at the disposal of the roots. This means more food for them and hence a larger crop.

In planting, the furrows are best opened with a double mould-board plow and the seed dropped about fourteen inches apart in the furrow. They may be covered with the same implement to a depth of four or five inches, levelling off afterwards with a smoothing harrow. If the ground should harden before the sprouts show, run a weeder over it to break the crust.

As soon as the plants are a few inches high start cultivation, cultivating deep and wide at first, taking care subsequently not to injure the roots.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited
PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS ASSOCIATION

H. BRONSON COWAN, Managing Director

UNITED STATES REPRESENTATIVES
STOCKWELL'S SPECIAL AGENCY
Chicago Office—People's Gas Building.
New York Office—286 5th Avenue.

1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.25 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912...	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each Issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912. 11,057

May, 1913..... 11,609

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

A SPARTAN EFFORT

The elimination of the middleman, by selling direct from orchard to consumer, has been the dream of the fruit growers of Ontario for some years. Outside of a few growers securing private customers, not much has been done towards making the dream come true. Last fall and winter, however, as previously noted in these columns, an attempt was made to sell direct to the general public of Toronto by an Elgin county man—Mr. J. A. Webster, of Sparta. In the progress of his efforts and results there are some lessons worth noting.

With exceptional valor, like the Spartans of ancient Greece, this modern Spartan had the courage of his conviction that the people of Toronto would consume large quantities of fruit if they could buy it at a reasonable price, and "direct from orchard to consumer." With this in mind and with more money for himself, as the producer, in view, he secured storage space in the basement of the St. Lawrence market, and commenced to sell wholesale and retail—and then the trouble commenced. Various situations and differences arose between Mr. Webster and the city officials, some of which resulted in law suits. The city did not permit the selling by retail in the storage rooms, nor selling anywhere in the market in quantities of less than one bushel; it doubled Mr. Webster's rent, and moved him from one place to another.

Mr. Webster's experiences in the St. Lawrence market serves to show that the Toronto City Council, which is influenced in this matter probably by the Retail Merchants' Association and by the wholesalers and commission men, does not intend to encourage the fruit growers to sell direct to the people. It is altogether unreasonable, for instance, for Toronto to charge seventy dollars a month rent for storage and selling space to only one grower who wants to sell a few apples. What a tremendous revenue the city would acquire should a few hundred growers undertake the same scheme!

One local result of Mr. Webster's efforts has been the opening of the market to farmers and hucksters for the selling of fruit in small packages. Although many farmers did sell apples in the past in small quantities, they constantly were in fear of being fined for so doing. Some of them were fined at times as a warning to themselves and others. Of course, the consumers did not do this nor want this regulation to stand. But there were others with sufficient reasons and influence to demand it. Since Mr. Webster's testing of the by-law, one can go there on market days and find everybody buying and selling in any quantities desired. This may all yet be put back into the old order by subsequent city by-laws, should the council forget its duty to the consuming public, and give way to the pressure of selfish interests, which will be sure to be applied once more as soon as the present interest of the consumers subsides.

The case of Mr. Webster brought out incidentally another factor in fruit marketing that at first thought is rather complicated. A certain large hotel in Toronto had been buying Oakville apples at two dollars a box through a well known commission firm. Mr. Webster offered his apples to the hotel at one dollar and a half a box—the same price that he quoted on the market to the general public—and got an order. Later, when soliciting for a repeat order from the same hotel, he was refused and told that the commission man was then supplying the Oakville apples at one dollar and thirty-five cents a box. This was a deliberate under-cut on the part of the commission man. Who lost the difference between the one dollar and thirty-five cents and two dollars? Did Mr. Webster injure the Oakville fruit grower? Would any one or more growers with fruit for sale in Toronto, were they to endeavor to sell it at a reasonable price direct to the consumer, be injuring the fruit industry of the province? Would a distributing centre in Toronto, as proposed by the Niagara Peninsula Fruit Growers' Association, hurt all other growers in the Niagara district who are compelled by circumstances to ship to commission men? If this would happen, what is the use of all the talk about elminating the middleman? In our opinion, no grower or body of growers would be injured in the long run. The uncertainty of the methods practiced by some, not all, of the commision men, and the fact that the growers would be selling, like Mr. Webster, direct to the people at prices more near what production warrants, would soon counterbalance any apparent temporary injustice.

While the Sparta grower probably has not been over successful this year, on account of high rents, strenuous opposition, cost of law suits and other discouraging factors, his propaganda is worthy of further efforts on the part of himself and other growers. The expenses of the scheme are too great for one man alone. Schemes of this kind could be handled much more economically and more profitably by our fruit growers' associations. Should it be found that they are not wanted in the St. Lawrence market, they should, and could, establish a fruit market of their own.

ROADSIDE PESTS

The article in this issue of The Canadian Horticulturist, by Professor E. M. Straight, serves to show the extent to which the wild fruits may become a source of infection in our commercial orchards. Anyone who has carefully examined a wild apple tree could not but be impressed by the diversity of pests that it harbors. The trunk not infrequently is perforated with borers, the bark covered with scale, the branches and leaves draped with webs, and the fruit a veritable happy hunting ground for codling worm.

The destruction of these breeding grounds of orchard pests is a phase of orcharding that has not received the attention that it merits. There are two main reasons why these outside sources of infection have been somewhat neglected. First, the extent to which they menace the orchard has not been fully realized; second, their destruction has often been a matter outside the orchardists' control. In respect to the former, fruit growers are more and more coming to realize the extent of such infection and the need for immediate action. In the latter case we meet with a difficulty not easily removed.

No matter how much he may wish to, the fruit grower has no authority to destroy wild trees on the property of a careless neighbor. Perhaps this neighbor has a small orchard that is never sprayed and is really growing under wild conditions. Here is where the law must step in, as it

does in some districts, and protect the progressive fruit grower.

In several provinces of Canada the provincial governments have enacted laws that more or less cover the difficulty. British Columbia has a law that makes spraying compulsory. The Nova Scotia Government is helping the fruit growers fight the brown tail moth. Inspectors are sent out to destroy the nests and bounties are offered for the same purpose. In Ontario the municipalities may appoint local fruit inspectors, and provision has been made for the appointment of provincial inspectors as well.

The fruit growers of Canada require a system of inspection that will be thorough. They believe that a well organized corps of inspectors is needed and that their appointment should rest with the provincial governments. By avoiding the appointment of local men in a district a more impartial inspection is secured. Moreover, fruit growers believe that the inspectors should have authority to compel the destruction of wild fruit trees and similar nuisances where these are a source of infection. In addition, a law making spraying compulsory in the leading fruit districts is required.

These provisions would fill a long felt want. The Ontario Fruit Growers' Association has placed itself on record as favoring thorough provincial inspection of orchards. The destruction of roadside pests should not be overlooked.

Reports received by The Canadian Horticulturist show that Mother's Day was more generally observed this year than ever before. In many towns and cities, difficulty seems to have been experienced by the public in obtaining flowers, the florists in many instances having been sold out by noon. It is evident that the day is making a well-deserved place for itself in the national observances of the country. As there is always likely to be a shortage in the supply of cut flowers at a time when there is such an unusual demand the use of pot flowers on Mother's Day should be encouraged. This is quite in harmony with the general idea of the day which for a long period in the Mother Land was observed by the giving of any form of present.

A glance at the reports published on this page of the work being done by various horticultural societies in Ontario will serve to show that greater interest is being taken this year in the work of a number of the prominent societies than ever before. The St. Catharines society has long been noted as one of the best managed and most successful in the province. It is encouraging, therefore, to see that the St. Thomas society is beginning to challenge its pre-eminence, and that it has already passed it in point of membership. The indications are that the membership this year of the horticultural societies of Ontario as a whole will be considerably the largest on record. Their value to Ontario will be increased in proportion.

Every year reports are received of fruit growers who have been swindled by enterprising agents of practically unknown nursery concerns. In the Niagara District, where these games have been worked time and again, one would expect that the growers by now would be wise enough, before ordering nursery stock, to investigate thoroughly, where necessary, the standing of the firms with which they proposed to do business. The fact that a large number of growers in the Niagara District have recently been caught mapping by a United States concern indicates that we still have many growers who are not as careful on these points as they should be.

PUBLISHER'S DESK

Our frontispiece illustration this month shows a package of British Columbia strawberries ready for market. Last month our cover illustration showed May blossoms in a Nova Scotia orchard. The Canadian Horticulturist circulates freely in both districts. Could anything better illustrate its national character?

Last month we announced that at the solicitation of The Ontario Beekeepers' Association, we had undertaken to publish a second edition of The Canadian Horticulturist which would be known as The Canadian Horticulturist and Beekeeper and which would contain some five pages of matter of special interest to beekeepers. The first issue appears to have been received with general satisfaction by the beekeepers. This month's issue of The Beekeeper will be even better. During May we purchased The Canadian Bee Journal, published at Brantford, Ontario, which for over twenty-one years has been the recognized exponent in Canada of the beekeeping interests. The circulation of The Canadian Bee Journal has been merged in that of The Beekeeper. It is our intention that The Beekeeper shall continue to fill the place in the beekeeping interests of Canada that has always been held by The Canadian Bee Journal. As the subscription price of The Canadian Horticulturist and Beekeeper is $1.00 a year readers of The Canadian Horticulturist who desire to have their subscriptions changed so that they may receive instead The Canadian Horticulturist and Beekeeper will be expected to remit the difference in the price of the two publications. Sample copies of The Beekeeper will be sent free on request to those applying for them.

This month's issue of The Canadian Horticulturist is being mailed to the largest number of paid subscribers we have ever had. We are also printing the largest number of copies that have ever been run off the press for any one issue. Last year the average paid circulation of The Canadian Horticulturist for the year was eleven thousand and fifty-seven. The June isue a year ago had ten thousand nine hundred and forty-six paid subscribers. This year the paid circulation of The Canadian Horticulturist with its second edition, The Canadian Horticulturist and Beekeeper, is twelve thousand six hundred and eighty-four. The number of copies of the two editions that have been printed is fifteen thousand one hundred. As new subscirptions are coming to hand rapidly from all parts of Canada for both editions we expect to soon be able to announce the establishment of still higher records. We know that the readers of The Canadian Horticulturist like to hear of the progress we are making and it therefore gives us pleasure to be able to report such facts.

Never before has The Canadian Horticulturist given its advertisers such good service as at present. This is due in part to the natural but decided increase that has taken place in the circulation of The Canadian Horticulturist, in part to the extra increase in circulation that has been brought about by the launching of its second edition known as The Beekeeper and in part to the improvement that has been effected during the past couple of years in the editorial standard of the articles published. For these reasons, as well as for the fact that these improvements have materially increased the cost of publication, it has been decided to advance the advertising rates of The Canadian Horticulturist, including The Beekeeper, on and after August 1st next, to ten cents a line, or one dollar forty cents an inch. This is a flat rate, and will apply to all contracts. Advertisers who desire to do so may contract for space for one year only in advance from the thirty-first of July next at our present low rate of only nine cents a line, or one dollar twenty-five cents an inch. Those advertisers who take advantage of this offer will be assured of receiving great value in the service we will give them, as they will reap the full benefit of the rapid increase that is taking place in the circulation of The Canadian Horticulturist with its second edition The Beekeeper.

Lack of space prevents our outlining in this issue the special articles that will be a feature of the July number of The Canadian Horticulturist. Our readers are assured, however, that they will be unusually intersting. The illustrations also will be high-class.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

St. Thomas

The St. Thomas Horticultural Society does not believe in "letting the grass grow under its feet." Last year it had a membership of some three hundreed. This year it is aiming at one thousand. Already over seven hundred have been obtained.

This spring it has carried on a whirlwind campaign in the interests of home gardening and city beautifying. The prizes offered are generous and cover fourteen classes, such as home vegetable and flower gardens, lawns, school gardens, and factory premises. Dr. F. E. Bennett, the president, is inspiring everybody with his enthusiasm. It is expected the final membership will well exceed the thousand aimed at, which will make the society considerably the largest in the province.

Ottawa Flower Guild

The work of the Ottawa Children's Flower Guild is coming in for much favorable comment. Besides having their minds instilled with the beauties of nature and the need of pleasant home surroundings, the children are impressed with the value of good citizenship and of taking a pride in their country. For this purpose, the children are taken to visit the Houses of Parliament, the conservatories, the parks, and the Museum. Such a society is worthy of all encouragement.

Mr. R. B. Whyte, the president, is as-

(*Continued on page* 166)

Cooperation in Nova Scotia on a Large Scale

The cooperative handling of the fruit crop is probably further developed in the province of Nova Scotia than in any other province in Canada.

Probably two-thirds of this year's crop will be handled through the local associations and their central organization. The cooperative movement has been making wonderful strides in the fruit growing section of Nova Scotia during the past few years. The fruit growers of the Annapolis Valley can produce prime fruit and believe that they should receive their fair share of the price. The result has been the development of the cooperative movement.

Until a few years ago the entire export crop was handled by European commission houses, who had local agents throughout the Valley. The commission charges incidental to this system are exceedingly large; the total charges for freight, commission, insurance, etc., amounting to as high as one dollar and fifty cents to one dollar sixty cents a barrel. In some cases when the shippers received their sales account they found that their fruit had sold for less than the commission men's charges and were called upon to make up the difference.

The fruit growers naturally chafed under these conditions, and as early as 1902 an attempt was made to form some kind of a cooperative society. The first successful attempt, however, did not materialize until five years later. The growers in the neighborhood of Berwick organized under the name of the Berwick Fruit Company, with an authorized capital of ten thousand.

The company built a large warehouse, to which the fruit of the different members was brought and packed by experts. This assured a uniform pack and naturally a higher price was obtained. The first year the company handled nearly two thousand barrels of apples. The next year this number was doubled and the third year it was trebled—ample evidence of the success of the movement.

MOVEMENT SPREADS

As a result of the success that attended the formation of this first company, other companies were formed until now the number is about thirty. The members agree to pool their apples and receive the average price according to grade and variety. Thus the better a member's fruit is, the larger will be the proportion of No. 1 pack and the better will be the price. The Provincial Government passed an act especially designed for the formation of such societies.

The growers realized, however, that they were not getting the maximum results that the cooperative system could offer. If the various separate companies were centralized they could do still better. Delegates from the different companies got together and decided to give the centralization idea a year's trial. This was in 1911.

The different companies did not bind themselves by any set rules. The central organization would make sales for the different companies and also buy supplies for them. Messrs. S. C. Parker, John Donaldson, and J. N. Chute were chosen from among the delegates to act as an executive. S. B. Chute, one of the well-known fruit growers of the Annapolis Valley, was employed as general manager.

A small percentage was charged on all apples shipped through the central organization. Each of the companies that entered the organization, over twenty in number, paid a fee of five dollars. Nor did the payment of this fee compel the companies to sell their fruit through the central. They could still act as free agents.

That year the Central sold over one hundred thousand barrels for the companies. An agent was sent through the west, and over ten thousand barrels of Gravensteins were sold. This was really the advent of Nova Scotia fruit on the western market. Last year eighty-five thousand barrels went to the same market.

In 1911, Nova Scotia produced the largest crop of apples in its history. The steamship lines were unable to handle the unusually large export traffic. Right here is where the association proved its worth. Additional steamers were chartered and the congestion was relieved.

ON A PERMANENT BASIS

The success attending this trial of a Central Association was so pronounced that steps were at once taken to make it permanent. Last year the company was incorporated with an authorized capital of fifty thousand dollars, nearly all of which is subscribed. At the time of organization twenty-two companies became affiliated in the Central Association, which was termed The United Fruit Companies of Nova Scotia, Limited. Each company subscribed twenty per cent. of its capital stock. Since then, several more companies have come in, making the number about thirty.

All companies agree to give the Central complete control of their fruit. Returns are pooled, the same as was formerly done in the small companies. The Central now controls over thirty warehouses, with a storage capacity of over four hundred thousand barrels.

The company does not confine its attention merely to the shipping of apples. Large supplies of fertilizer, barrels, pulp heads, nails, etc., are bought and distributed among the 1,500 members. This cooperative buying was conducted by many of the small companies, but the Central now buys for all and so gets rockbottom prices. On account of the large amount of business handled, insurance is procured at most favorable rates. Several evaporators have been erected for the utilization of the culls.

NEW MARKETS DEVELOPED

The association is developing broader markets. A European agent has been appointed and the merits of Nova Scotia fruit are being made known to the European consumer. The South African market is being developed also. The association is kept in touch with the market conditions throughout the world, and complete statistiscs are always kept on hand.

The purpose of the association is not confined alone to the immediate requirements of the apple industry. It is aiming high. The operating of refrigerator cars, the manufacturer of barrels and boxes, and the purchasing of all the commodities required by the members are among the developments that it has in view.

A land and apple show will be conducted in the new auditorium of the Winnipeg Industrial Bureauu October 10th to 18th. The show will be an all Canadian one. In addition to liberal cash prizes, diplomas will be awarded for the finest general display of grains and fruits exhibited by provincial governments, fruit growers' associations, and other organizations.

Better Service Needed

That the establishing of icing plants and a more regular freight service are the two outstanding needs of fruit shippers, was the opinion expressed by Manager Robert Thompson in presenting his annual report at the annual meeting of the St. Catharines Cold Storage and Forwarding Company. Mr. Thompson emphasized the fact that the company had suffered a serious handicap owing to irregular service and slow delivery of cars at destination points. In reference to the icing of cars, Mr. Thompson said that more extensive icing facilities were needed. If the railway would establish an icing plant the company would guarantee to take a supply.

Mr. Baxter, district agent of the G.T.R., stated that the G.T.R. was considering the feasibility of operating an icehouse in the district. The car service Mr. Baxter pointed out, had been bad all over the country in 1912, and the congestion in the larger centres had been unusual. This year the G.T.R. expected to have their main line through all the important points in the west.

Mr. Dawson, a Toronto commission agent, remarked that the unusually large number of delays last year was due to the extensive alterations being made on the main line outside of the city. The greater proportion of delays was between Bathurst Street, in Toronto, and the Market. He was of the opinion that the Canadian roads would have to run their trains on faster schedules as some of the United States lines were now doing.

Marking Imported Fruit

Hon. Martin Burrell, Dominion Minister of Agriculture, has given notice of an amendment to the Inspection of Sales Act of 1906 to provide that the Governor-in-Council may prescribe the kinds of imported fruit, the packages containing which must be branded or marked, the marks to be used thereon and the manner and places in and at which such fruit is to be inspected and such packages branded and marked.

All packages of fruit not branded or marked in accordance with such regulations are to be forfeited. Persons violating any regulation will be liable to a fine of not more than fifty dollars and costs.

St. Catharines Cold Storage Co.

At the recent annual meeting of the St. Catharines Cold Storage and Forwarding Co., Limited, the leading commercial fruit growrs' organization in Ontario, the financial condition of the company was shown to be excellent. Assets exceeded liabilities by $7,642. After allowing a refund of $2,903 in supplies, profit and loss showed a balance of $1,424. The statement of fruit sold totalled to $66,645. Supplies bought amounted to $60,645. Compared with the year of 1905, when fruit sold was $716 and supplies $9,849, the success of the company may be realized.

The members were urged by Mr. Robert Thompson, the manager, to stand by the company. They could not expect to buy supplies from other sources early in the year and then expect to be helped out by the company in time of shortage. Loyalty must be the watchword and would ensure continued growth.

The Board of Directors was elected as follows: G. A. Robertson, A. Onslow, R. Thompson, G. X. Walker, J. H. Broderick.

Advisory Board: C. Secord, W. H. Secord, A. Gregory, J. E. Parnell, J. A. Pay.

Failure of National Land, Fruit and Packing Co.

As previously announced in these columns, the National Land, Fruit and Packing Company, Limited, Toronto, recently went into liquidation. This company was formed for the purpose of operating a large number of orchards that it leased and bought throughout Ontario. Business was done on a large scale. Until a month ago it was thought there were some chances for the reorganizing of the company, but it is now evident that this could not be accomplished.

On April 21 the Court ordered that all scattered assets be sold. These included forty power sprayers, several car loads of fertilizers, spraying material, orchard supplies, and packing outfits. E. R. C. Clarkson, as liquidator, appointed R. A. Carey, of Hamilton, to auction these properties off in the towns in which they were located.

The published report of Mr. Clarkson looks rather encouraging, but when it is considered that the one hundred and thirty-five thousand dollars owing by the Agency Land and Security Co. is practically valueless, the creditors will receive a rather small part of their claims. Wages, salary and preferred claims will take nearly all the surplus.

Where did the money go? Two hundred thousand dollars went into improvement of Ontario orchards. The fact that the company was operated in two of the worst apple seasons in many years is accountable in part for the failure of Mr. Evans, the promoter's big concern. Also, Mr. Evans, who had little experience in apple growing and marketing, undertook the commercial management of the company. The huge evaporator, too, at Mimico, is poorly situated. Fruit in the neighborhood is carted into town at good prices and the evaporator stock must be freighted from outside points. All the real estate is mortgaged to the limit.

The scattered assets auctioned by Mr. Carey will no more than cover liquidating and legal expenses. We append a condensed statement of the assets and liabilities:

LIABILITIES

Direct (accounts over $1,000)—		
Simons Fruit Co., Toronto, Ont.	$15,000 00	
Grasselli Chemical Co., Limited, Toronto, Ont.	7,436 23	
Trenton Cooperate Mills, Trenton, Ont.	5,268 40	
H. H. Angus, Toronto, Ont.	4,900 00	
J. E. Anderson, Consecon, Ont.	3,150 77	
J. W. Emmerson, Attercliffe Stn., Ont.	2,748 05	
Baker Advertising Co., Toronto, Ont.	2,598 48	
F. W. Brown, Winona, Ont.	1,871 90	
C. W. Mueller, Waterloo, Ont.	1,133 75	
Canadian Fire Engine Co., Toronto, Ont.	1,013 89	
Other accounts total	19,489 49	
Reserve for contingencies	5,000 00	
		$69,610 96
Preferred claims		4,532 74
Unsettled—		
Claims for orchard rents, 1911.	$12,713 00	
Claims for orchard rents, 1912.	68,288 53	
Lessors' claims for tilling	1,015 00	
Lessors' claims for board	506 94	
Lessors' claims for teaming	497 89	
Wages	7,504 36	
		$90,525 19
Real Estate—		
In Township of Etobicoke	$6,500 00	
Subject to 1st mortgage to J. A. Manning, Toronto	4,000 00	
		$2,500 00
In Township of Etobicoke	$6,400 00	
Subject to 1st mortgage to W. E. McKissock	4,700 00	
		1,700 00

Douglas Gardens

Oakville, Ontario

Bedding Plants

CHINA ASTERS: Queen of Market, White; Queen of Market, Pink; Lavender Gem; Royal Purple; Late Upright, White; Crego, Pink. Grown in pots in fine form. Price: 10 for 25 cts.; 100 for $1.25; if not less than 25 of one sort, carriage prepaid.

ANTIRRHINUM (Snapdragon) and Scabiosa. Prices: 10 cts. each; 10 for 60 cts.

SALVIA (Bonfire), each 10 cts.; 10 for 75 cts.

GERANIUMS. from 10 to 12 cts. each.

DAHLIAS: Choice sorts and fine plants. Each, 15 cts.; 10 for $1.25.

GLADIOLI: Light colored, unnamed, 25 for 75 cts. Red and Scarlet, unnamed, 25 for 60 cts.

☞ Above prices include carriage prepaid.

JOHN CAVERS

Surplus Stock

We offer subject to sale the following stock, which we guarantee to be true to name, No. 1. stock in every respect, 5-7 ft. high. Price F.O.B. Pointe Claire, $27 per 100.

200 Alexander
200 Baldwin
200 Baxter
500 Ben Davis
500 Duchess
500 Fameuse
600 Starke
600 Spy
500 Wealthy
200 Yellow Transparent

Also complete list of Ornamental Shrubs and Trees of all kinds.

The CANADIAN NURSERY CO., Ltd.

10 PHILLIPS PLACE - MONTREAL, P. Q.

Greenhouse Glass

We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.

Shall be pleased to quote prices on application to any of our Canadian depots:

MONTREAL	TORONTO	WINNIPEG	VANCOUVER
Busby Lane	Mercer St.	Market St.	Powell St.

Pilkington Bros., Limited

Works at St. Helens, Eng.

The Call of the North

DO you know of the many advantages that New Ontario, with its **millions of fertile acres,** offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

H. A. MACDONELL
Director of Colonization
Parliament Bldgs., TORONTO, Ont.

NEW AND RARE SEEDS

Unique collection. Hundreds of varieties adapted for the Canadian climate. Perennial and perfectly hardy. Own saving. Catalog free.

Perry's Hardy Plant Farm
ENFIELD, MIDDLESEX, ENG.

Land and buildings valued by Harton Walker at $79,300		66,400 00
		$70,600 00
Plant, as valued by H. H Angus		31,750 00
		$102,350 00
Subject to Mechanics' Liens—		
Ontario Wind Engine & Pump Co.	$810 00	
Heather & Sons	152 00	
Mortgage dated December 7th, 1911, in favor of Union Life Insurance Co., 7% interest.	65,000 00	
		$65,962 00
		$36,388 00
Lots aggregating 145 acres and distributed through the Townships of Grantham, Sydenham and Esquesing		$18,500 00
Subject to mortgages		$19,290 12
Subject to mortgage dated November 1st, 1912, to Imperial Trust Co. for $75,000 on which advanced		$21,000 00
Equity carried to Assets		$15,388 00
Lenses—		
608 Orchard Leases, covering approximately 3,250 acres, containing 115,476 trees, valued on company's books at $864,080.00, being the amount of Capital Stock issued therefor.		
Realizable value of leases is entirely problematical		
ASSETS		
As per Inventory		
Merchandise	$19,228 95	
Supplies	7,250 05	
		$26,479 00
Real Estate and Plant—as per Schedule—		
Equity		15,388 00
Leases—		
Stock issued therefor, $864,080. Value problematical.		
District Supplies—as per Schedule		
In hands of Agents		8,456 25
National Fertilizers—as per Schedule.		
Unpaid		5,680 10
Outstanding accounts	$2,116 37	
Imperial Loan Co.	4,400 00	
National Credit Clearing Co.	4,170 23	
G. Millichamp	3,000 00	
A. H. Patterson	20 00	
		13,706 60
Debenture of Agency Land & Security Co.		135,602 72
Cash—In Bank, December 31st, 1912		1,076 52
Total		$206,389 29

Bulletins and Circulars

The seventh annual report of the Horticultural Societies of Ontario for the year 1912 and the eighth annual report of the Ontario Vegetable Growers' Association for the same year have been received by The Canadian Horticulturist. Both these publications are published by the Ontario Department of Agriculture, and give a good resume of the work carried on by these organizations during the past year.

Other publications received from the same Department include, Bulletin 211, on Fruits Recommended for Planting in Various Parts of Ontario; Bulletin, 210, Strawberry Culture and the Red Raspberry, by F. M. Clement, B.S.A.; Bulletin 212, An Orchard Survey of Dundas, Storment and Glengarry Counties, by F. S. Reeves, B.S.A. This last should be of special interest to persons interested in horticulture in those counties.

The Horticulturist is also in receipt of the following bulletins and circulars: Circular No. 9 of the Utah Agricultural College, Pruning the Apple Orchard. This is an attractive bulletin and deals with pruning in all its phases. Bulletin 248, of the Ohio Agricultural Experiment Station, Spraying Machinery Accessories, treats the subject thoroughly. Bulletin No. 169 of the Vermont Agricultural Experiment Station, Cultural Studies on Montreal Market Muskmelon (an extract from this bulletin is published elsewhere in this issue). Bulletin No. 6, Ontario Department of

A Season Saved Is One Year Gained

We still have a stock of most lines of fruits which we offer at attractive prices.

These trees have been dug and carefully heeled in readiness for immediate lifting and speedy packing.

Do not leave the orchard land empty. This summer's growth will bring the orchard one year nearer harvest, and double the value of the land.

THE AUBURN NURSERIES, Ltd.
Head Office: 95 King St. E., TORONTO
Nurseries: QUEENSTON, SIMCOE, OAKVILLE

To Our Advertisers

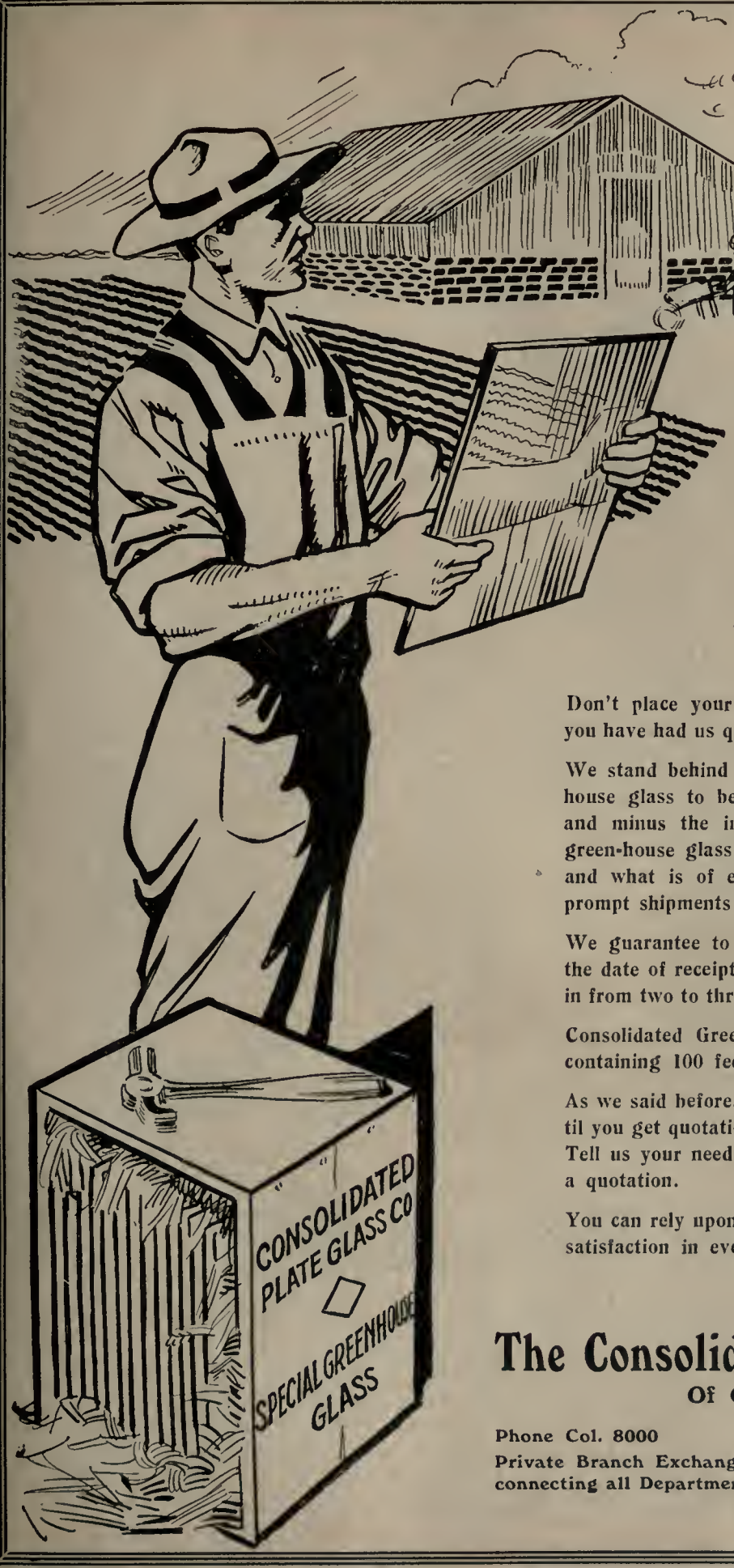
On and after August 1st, 1913, the rate of advertising in The Canadian Horticulturist will be advanced to $1.40 per inch flat.

Special Offer

New or renewal contracts calling for a specified amount of space to be used within one year ending July 31st, 1914, will be accepted up to August 1st, at our present rate of $1.25 per inch flat.

Special September Number

Our great **Exhibition** and **Fall Packing Number** is now being prepared. Special value will be offered you in its many special features. **Reserve Space Now** rate $37.50 per page before August 1st, and proportionate. After August 1st, $42.00 per page.



Buy Consolidated Greenhouse Glass

Don't place your order for green-house glass until you have had us quote you prices.

We stand behind every sheet of Consolidated green-house glass to be of better quality, more even cut, and minus the imperfections common to European green-house glass. You can rely upon it absolutely, and what is of equal importance to you, we make prompt shipments for import.

We guarantee to deliver all orders one month from the date of receipt, but the average order is delivered in from two to three weeks.

Consolidated Green-house Glass is shipped in boxes containing 100 feet in standard Green-house sizes.

As we said before, don't order Green-house Glass until you get quotations from us. Write for prices now. Tell us your needs, and we will answer at once with a quotation.

You can rely upon us for prompt service and absolute satisfaction in every detail of the transaction.

The Consolidated Plate Glass Co.

Of Canada, Limited

Phone Col. 8000
Private Branch Exchange
connecting all Departments

241 Spadina Ave.
TORONTO

LET A DAVEY TREE EXPERT EXAMINE YOUR TREES NOW

Weak crotches in trees are the ones that split apart in the storms. Dead limbs are the ones that fall—a menace to life and property. Trees with cavities are the ones that the winds blow over. A fallen tree cannot be replaced in your lifetime.

THE LOSS OF TREES IS THE PRICE OF NEGLECT

You may think that your trees are sound—but do not trust to guesswork—learn the truth through a Davey Tree Expert without cost or obligation. If your trees need no treatment you want to know it—if they do need treatment you ought to know it. Let a Davey Tree Expert examine your trees now.

WRITE FOR BOOKLET

Accredited Representatives available Everywhere. Men without credentials are impostors.

The Canadian Davey Tree Expert Co.
707 New Birks Bldg., Montreal, Canada

BRIGHTEN UP

your home with the wonderful **White Flame Burner.** Makes your old lamps and lanterns give a brilliant soft white light better than electricity or gas. Saves eyesight and makes reading or sewing a pleasure. **No Mantle to Break.** Reliable and economical. Satisfaction guaranteed. Delights every user. **Complete Sample Mailed to any address for 35 cts. or 3 for $1.00. Money back if not Satisfactory. Mail orders promptly filled.**

BRIGHT LIGHT CO., Merrickville, Ont.

Education, Agricultural Education. Special Bulletin 59, Michigan Agricultural College Experiment Station, Small Fruit Culture. Circular 467-2-13, Maine Agricultural Experiment Station, The Potato Flea Beetle. Bulletin No. 166, Vermont Agricultural Experiment Station, Commercial Fertilizers, a splendid bulletin. Bulletin 162 of the same station, Plant Diseases and Potato Spraying Experiments in 1911. Extension Bulletin No. 35, Extension Division University Farm, St. Paul, Minn., on Potato Diseases. Circular No .8, Utah Agricultural College Experiment Station, Varieties of Fruit Recommended for Planting in Utah.

Bulletin No. 213, Bee Diseases in Ontario, by Morley Pettit, Provincial Apiarist, Guelph, Ont., deals in a thorough and interesting manner with bee diseases. It should be in the hands of every beekeeper. It can be obtained free on application to the Ontario Department of Agriculture, Toronto.

Express Rates Reduced

An order has been issued by the Dominion Board of Railway Commissioners, reducing express rates between points west of Sudbury, Ont., in accordance with an analysis of the cost of transport. It is said the reduction in rates will mean to the Dominion Express Company 35.36 per cent. of its net revenues.

The order of the Board (No. 104) dated May 8th, says:

"It is ordered:—

"(1) That the express companies under the jurisdiction of the Board be, and they are hereby required to submit new standard tariffs, of maximum mileage rates to be charged for express freight classified as merchandise between points west of and including Sudbury, Ontario, making a reduction of approximately twenty (20) per cent. from the maximum mileage rates in excess of fifty cents per hundred pounds now being charged; the said reduced maximum rates to carry with them the appropriate tolls of the 'graduate' tables, scales 'K' and 'N' and the special tariff for single shipments of 500 pounds or over.

"(2) That the said maximum rates, so reduced for the mileage group from nine hundred to one thousand miles, do not exceed four dollars ($4) a hundred pounds in the sections between Sudbury, Ont., Sault Ste. Marie, Ont., and Crow's Nest, Canmore, and Thornton, Alberta, and four dollars and seventy-five cents ($4.75) a hundred pounds in the section west thereof in place of five dollars and six dollars respectively, as now charged."

The Biggest Thing in the Clock Business

Big Ben is the biggest thing today in the alarm clock business.

He is only two years and a half old, but he's already getting more work from the Dominion than any clock alive.

In two years and a half time, 6,000 Canadian dealers have adopted him. Nearly half of the families in Canada leave it to him to call them up in the morning; nearly half the families in Canada use him all day long to tell the right time by. He is really two good clocks in one—a crackerjack of a timekeeper and a crackerjack of an alarm.

Big Ben stands seven inches tall. He is triple nickel-plated and wears an inner vest of steel that insures him for life. His big, bold figures and hands are easy to read in the dim morning light. His large, comfortable keys almost wind themselves. He rings *five minutes steadily or ten intermittently.* If he is oiled every other year, there is no telling how long he will last.

Big Ben's price is $3.00 anywhere in Canada. If you cannot find him at your dealer's, a money order sent to *Westclox, La Salle, Illinois,* will bring him to you, carefully packed and duty charges paid.

BIG BEN

GARDEN LIBRARY FREE
Full details given on Outside Back Cover

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Branch Warehouses: Sudbury, North Bay, Cobalt, Cochrane and Porcupine

Send for Shipping Stamp

Fruit and Vegetables Solicited

WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

INTERNATIONAL APPLE SHIPPERS ASSOCIATION

H. PETERS

88 Front St. East, Toronto

The Prairie Market for Fruit

Fruit growers in Ontario, British Columbia and Nova Scotia are all alike interested in the capacity of the market in Western Canada for apples, and from time to time estimates of varying degrees of accuracy have been made of the total quantity received annually by the provinces of Manitoba, Saskatchewan and Alberta. Last summer the Dominion fruit inspectors assigned to these three provinces were instructed to take notes as to the quantity of apples shipped into their several districts, and make a report to this office at the end of the season. These reports have been compiled with the following results: The total quantity of apples marketed in these provinces for the season of 1912 was approximately 495,000 barrels, of which Ontario supplied 238,000, British Columbia 75,000, Nova Scotia 18,000 and the United States 164,000.

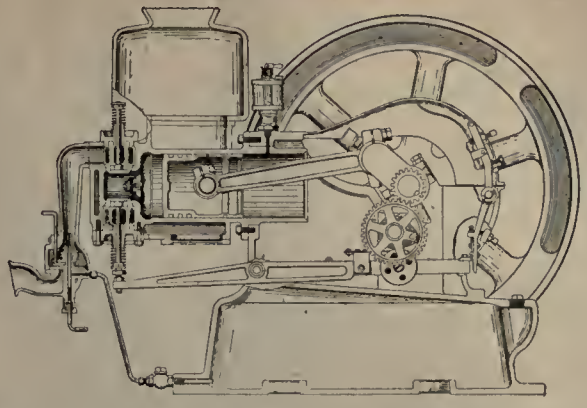
In addition to the prairie provinces there is a large and growing market in New Ontario which will afford an outlet for increasing quantities of Ontario apples. If we consider the present population of Fort William, Port Arthur, Sault Ste. Marie, North Bay, Sudbury, the Cobalt district, and similar sections, we shall find that 60,000 barrels is a conservative estimate for the quantity of apples marketed in this section during the past season. The proportion of the above total supplied by the United States would probably not exceed ten per cent.

Montreal

E. H. Wartman, D. F. I.

It has been my privilege for many years to inspect apples from various packages, harvested from one to twelve months, and to note their condition. During early May, while examining Golden Russets, Spy, Ben Davis, Gano and other varieties I found all the way from ten per cent. to fifty per cent. in number one barrels of these varieites in a rotten condition. I asked myself the question, Should these apples be so wasty at this date, and what could be the cause? Upon taking up specimen after specimen of these varieties I could see, without the aid of a glass, that every rotten specimen had had an injury of some kind when placed in the barrel or box. These injuries caused probably all the trouble. They were due either to a puncture caused by handling, to a diseased spot or to an insect mark. These specimens were put in, some seen and others not seen, and I have put it to the credit of a little oversight or carelessness on the part of the manipulator.

1½ to 20 H.P. Stationary or Portable



The Massey-Harris Gasoline Engine

is the simplest High-Class Engine on the Market

Simplicity—With Efficiency—Is the Keynote in the Massey-Harris Engine

IT has fewer parts than any other high-class Engine on the market, yet no other Engine is so reliable and efficient under the various conditions met with in actual work.

The Mixer is of the simplest possible construction, but gives higher efficiency and is more economical of gasoline than any other.

The Cylinder, Cylinder Head and Water Jacket are cast solid—no gaskets or packed joints to give trouble.

The Water Jacket extends around the Cylinder Head and Valves, and the Valves are extra large—no danger of overheating.

The Combustion Chamber and Spark Plug are placed in the end of Cylinder, ensuring quick combustion and direct action on the Piston.

MASSEY-HARRIS CO., LIMITED

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Where There is Condensation

—there is need for a Morehead Steam Trap. Condensation in steam lines is akin to matter out of place—means wasted energy.

If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. **Ask for Trial Trap.**

CANADIAN MOREHEAD M'F'G CO., Limited

WOODSTOCK, ONT.

CANADIAN REPRESENTATIVES:—Georga W. Cole, Woodstock, Ont.; Robert S. Bickle, Winnipeg, Man.; H. E. Kirkham, Montreal, Que.; Robert Hamilton, Vancouver, B. C.

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CANNOT BE EXCELLED

If interested send for special printed matter and revised Spray Calendar

We also manufacture complete lines of Gas and Gasoline Engines, Windmills, Tanks, Grain Grinders, Steel Saw Frames, Water Boxes, Pumps, etc., and have catalogues describing our different lines.

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BRANTFORD - ONTARIO

GOOD BAKERS

Use REINDEER FLOUR, and that is one of the reasons why they are good bakers. If the lady of the house takes pride in producing the BEST BREAD there is nothing that will help her so much as using REINDEER FLOUR

Good to Bake and Good to Eat, Makes the Loaf that's Light and Sweet.

THE PETERBORO CEREAL CO. Ltd.

Simcoe St. PETERBORO, ONT. Phone 113

Old fruit handlers prefer the original pack to the fresh pack and re-handling in February or March. Why? Because apples properly handled from tree to barrels and boxes in cool condition will keep longer than those re-packed at a late date.

A tendency to pack windfalls that have been of fine quality when on the tree, overlooking small injuries, is too common a practice. It generally causes great disappointment and loss. Who is to blame but he who packs through lack of good judgment.

Of course it is generally conceded that some seasons apples do not keep as well as others. But let me tell you that our hard commercial winter varieties, if properly handled, and stored, will give great satisfaction any year to the one who does his work faithfully and well.

Western Annapolis Valley, N.S.

R. J. Messenger, Bridgetown, N. S.

A very wet spring up to the third of May, but early in the swelling of buds and the springing of the grass. The fruit buds have come through the winter in good shape and promise a full bloom. Trees are about all pruned for this year.

The poor quality of last year's fruit, added to the poor prices received, have set our orchardists thinking. The feeling is becoming stronger among the farmers that they must raise better apples and many are expecting to grow fewer on the tree. To get this state of affairs some have determined to thin the fruit in July, while others are pruning very severely, hoping that the desired results of larger, better quantity of apples may be obtained thereby.

The question of spraying has received much more attention this last winter discursively at the blacksmith shops and village stores than ever before, and there is no uniformity of opinion in the matter. Intelligent orchardists have advanced most ridiculous opinions against spraying, but we are glad to notice that those who sprayed thoroughly last season and got as a consequence better fruit, will spray again this year. Some are in favor of returning to the use of the old Bordeaux mixture; some will make their own lime-sulphur, but by far the greater proportion, ninety per. cent., will use the easily obtained, easily mixed, commercial lime-sulphur, and commercial arsenate of lead. The future holds out a hopeful promise for the market end of our fruit business.

The United Fruit Companies control now over two-thirds of the output of the province, in spite of a childish and transparently selfish opposition put up by a few of the old speculators who have made easy money out of the farmers in the past. All the newly formed societies are uniting with the central association and the excellence of the pack will soon give it practically all the markets and make it the greatest organization in Nova Scotia.

Hon. James S. Duff, Provincial Minister of Agriculture for Ontario, has appointed Messrs. C. M. Honsberger, Jordan Station, F. G. Stewart, Homer, David Allan, Winona, and Earland Lee of Stoney Creek, to act on the Board of Control of the Jordan Harbor Experimental Farm.

Enclosed find one dollar renewal for The Canadian Horticulturist, the best of all horticultural journals. — Watson C. Orr, Winona, Ont.

Mr. Wm. Ewing, of Montreal, one of the best known seedsmen in Canada, died suddenly, recently while entering his home.

APPLE BOXES

WE make a good box at the right price. It is especially suited for the apple grower and shipper.

One of our large customers last year used thousands of our boxes for the export trade. Such trade demands a strong, durable box. Our boxes gave every satisfaction.

Our Boxes are Right
The Price is Right
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LIMITED
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BRITISH COLUMBIA

Fruit Lands for Sale

Kelowna, Okanagan Valley

The famous Apple Growing district of the Province. We have large listings of Improved and Unimproved Fruit Lands. Easy Terms.

Write for Illustrated Booklet and any Information to

Wilkinson and Fisher
Box 251, Kelowna, B.C.

Bow Park Farm's
Golden Rain Seed Oats, 75c per Bushel!!
Great new Swedish variety. Extremely well adapted for Ont. Germination 98%

Bow Park Farm's
Asparagus Plants, two years old!!
100 Plants 50c. - 1000 Plants $4.50

Bow Park Farm's
Hatching Eggs, $1.50 per Set of 15!!
R. C. White Wyandottes, R. C. Columbian Wyandottes, from the very best layers only, selected by trap-nests and records.

BOW PARK FARM
Dominion Canners Seed & Experimental Farm
BRANTFORD, Ont.

IRON PIPING BARGAINS
We have over 450,000 feet of slightly used piping just as good as new and first class for water, steam, heating greenhouses, construction, fencing, posts, etc., at 25 per cent to 50 per cent less than regular value.
NOTE THESE PRICES

DIAMETER	1-2 in.	3-4 in.	1 in.	1 1-4 in.	1 1-2	2 in.
Price per ft.	2c	2 1-2c	3c	4c	5c	7c

Also other sizes up to 10 inches.
Send us a list of the lengths you need and we will give you a special low price on the lot, cut and threaded, ready to put together. We also have enormous quantities of Wire Fencing, Belting, Pulleys, Cable Rails, New Roofing, Saws, Vices, Forges, Etc., at 25 per cent to 75 per cent less than regular value.
CATALOGUE ON REQUEST
The Imperial Waste & Metal Co. 99 Queen St. MONTREAL

Price **$7.00**

The Vest Pocket KODAK

is a miniature in size—actually small enough to go into a vest or hip pocket—but a thoroughly capable, durable, practical and efficient photographic outfit.

A Kodak on the farm, not only means fun for the young folks, but has an every-day, practical usefulness as well. Tells the story of crops, new buildings under way—stock and poultry for sale, etc., better than any description.

And the Vest Pocket answers every outdoor need to perfection.

The size makes it as convenient to carry as a pocket knife or watch—the fine quality of the meniscus achromatic lens gives you pictures (size 1⅝ x 2½ inches) of splendid definition and as full of detail as the largest.

The Vest Pocket Kodak is made simple and strong—nothing to get out of order—is always ready for use, has a fixed focus—brilliant, reversible finder—Auto-time Scale—loads and unloads in daylight with Kodak film cartridge for eight exposures—lustrous, black metal finish. Right as a watch in adjustment and the refinement of every detail.

Catalogue Free at your dealers or by mail

Canadian Kodak Co., Limited
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is
My Business

I have great bargains in hives for you during June and July.

Prompt shipment. Write right away for right prices on right hives.

A. T. HAINES
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Sprayers
Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

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Artistic Plans, Sketches furnished for all kinds of LANDSCAPE CONSTRUCTION WORK.
Ornamental Trees, Shrubs, Coniferes, Hardy Perennials, etc.

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New Stock of Comb Foundation in first class condition. Can ship promptly.

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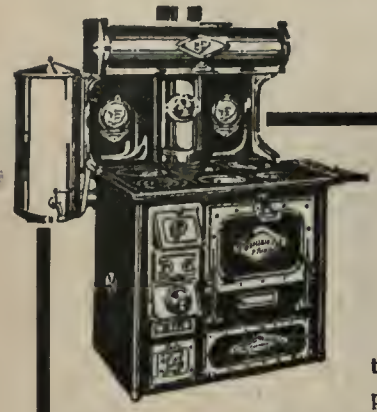

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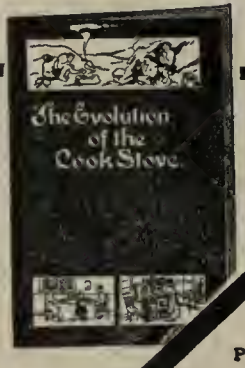

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Fruit Prospects in Ontario

The report of the Ontario Bureau of Industries on fruit prospects in the province is as follows:

In the first week of May orchards gave promise of an immense yield. The trees were covered with fruit buds—many in full bloom—and small fruits were also blossoming profusely. Between May 7 and 11, however, a series of severe night frosts occurred, the effects of which are variously described. A careful sifting of the reports shows that early strawberries were badly nipped, but that the later varieties escaped. Some bush fruits, such as currants, were also caught in some of the more advanced sections. In the fruit lands along the lake shores—more especially in the Niagara District—fruit trees sustained comparatively little harm from the frosts, but some of the orchards farther inland were injured to some extent.

If the orchard trees, apples have suffered the least and plums and cherries the most, but in no case as seriously as was at first expected. To sum up, the injury from the severe frosts of May has turned out to be much less general than was feared at the time of the frosts, and a good yield of all classes of fruit may still be had should favorable conditions prevail.

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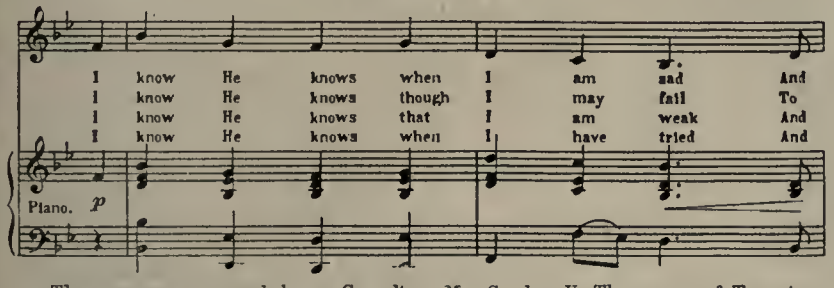

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1. How many persons on an average read your copy of The Canadian Horticulturist? .....
2. Do the women read The Canadian Horticulturist? .....
3. What other weekly or monthly publications do you read? (Important) .....
4. What is the value of the property you occupy? .....
5. Do you own or rent your place? .....
6. What is your occupation? .....
7. How many acres have you? .....
8. Are you a fruit grower? .....
9. How many trees have you? ..... Apples? ..... Plums? ..... Pears? ..... Peach? ..... Cherry? .....
10. How many acres in small fruits? .....
11. What is your annual income from all sources? .....
12. What implements do you use in your orchard? .....
13. Do you use a hand or power sprayer? .....
14. What make? .....
15. What spray mixtures do you use? .....
16. From whom do you buy them? .....
17. Do you use explosives for planting trees, or ditching or stumping? .....
18. Do you box fruit for export? .....
19. From whom do you buy nursery stock? .....
20. From whom do you buy apple barrels and fruit baskets? .....
21. From whom do you buy fruit ladders? .....
22. From whom do you buy fruit wraps? .....
23. Do you use fertilizers? .....
24. What kinds? .....
25. From whom do you buy them? .....
26. Do you keep bees? .....
27. How many hives? .....
28. Have you a honey extractor? .....
29. Where do you buy bee supplies? .....
30. Where do you sell your honey? .....
31. Have you a gasoline engine? ..... What horse power? .....
32. Have you wire fencing? ..... What make? .....
33. Have you a wind mill? .....
34. How many horses have you? .....
35. How many rooms are in your house? .....
36. How do you heat your home? ..... Make of stove, furnace, etc. .....
37. How is your home lighted? .....
38. Do you cook with coal, gas, wood, oil or acetylene? .....
39. Do you use a vacuum cleaner? .....
40. What make of washing machine do you use? .....
41. What brand of laundry or toilet soap do you use? .....
42. What make of piano or organ have you? .....
43. What make of talking machine have you? .....
44. What baking powder do you use? .....
45. What flour do you use? .....
46. What breakfast food do you use? ..... Rolled Oats? .....
47. If cereals, what kinds? .....
48. Do you raise poultry? .....
49. What make of incubator have you? .....
50. What roofing material do you use? .....
51. Have you an automobile? ..... What make? .....
52. Have you a greenhouse or conservatory? ..... What make? .....
53. Do you buy flower and vegetable seeds? ..... From whom? .....
54. Do you buy articles advertised in The Canadian Horticulturist? ..... Why? .....
55. Are you interested in flower and vegetable growing? .....
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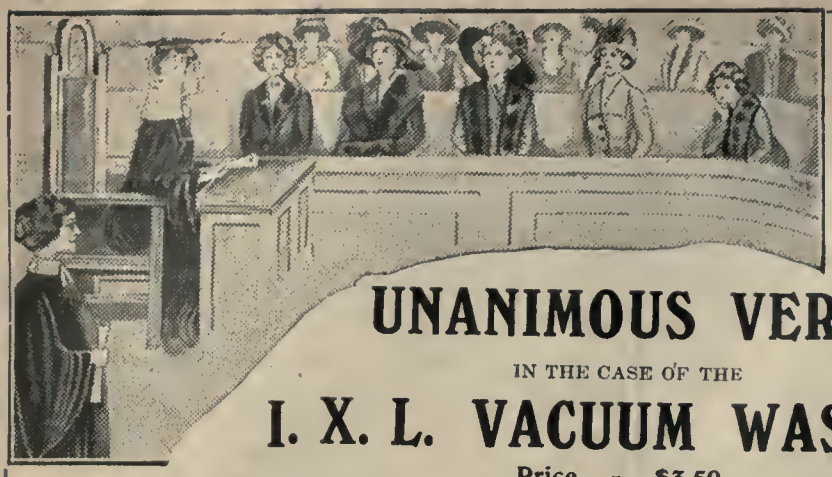

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Mrs. R. R. Hutchinson.

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Mrs. H. F. Duncalfe.

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I have used the Vacuum Washer at home and find it to do all you claim and more after giving it a test. Yours truly,
George Mahan.

195 Bishop St., Montreal, P.Q.
We have received our I.X.L. Vacuum Washer and it is so perfect in every way that I am sending an order for two more for a friend and another for myself. Yours sincerely,
Mrs. A. G. Ostell.

Thousands of women who are using them have rendered an unqualified verdict in favor of the I.X.L. VACUUM WASHER, and these women have used every make of Washing Machine, and are fully qualified to judge merit.
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(*Continued from page 157*)

sisted by a competent committee, including the president of the horticultural society, Mayor J. A. Ellis, by Mr. W. T. Macoun, of the Experimental Farm, by Mr. Alex. McNeill, of the Fruit Division, as well as by a number of ladies keenly interested in horticultural and educational work among the children of Ottawa.

Fruit Crop Prospects

In Eastern Canada the weather during March, April, and the first part of May has been all that could be desired, except that the majority of correspondents qualify their optimistic reports with the condition that frost may intervene. The weather reports for the last two months from British Columbia are by no means so favorable. The winter frosts were much heavier than usual, sufficiently so to slightly injure the tenderest trees and varieties. Light frosts have injured apricots, peaches and cherries. In one or two districts plums are reported affected by the frosts of April 29. In the Maritime Provinces trees have wintered well. More rain has fallen this spring than usual. The season is fully two weeks in advance of the average.

Upon the whole the weather conditions for fruit generally have been good, but it must not be forgotten that complications may arise any time between now and harvesting. This is particularly true, for instance, with reference to the cherry crop, which promised last year to be very large, but was seriously injured by excessive precipitation, especially in Eastern Ontario, between the growing and harvesting months.

APPLES

The reports of our correspondents upon the apple crop are most optimistic. In British Columbia and Ontario the bloom is sufficiently advanced to show that it is especially heavy this year. Quebec and the Maritime Provinces report that there is an excellent showing for bloom, and trees are particularly healthy.

PEARS

The pear growing sections of Ontario and British Columbia report the conditions very favorable as indicated by the bloom. The trees are particularly healthy and no winter killing is reported. In the Maritime Provinces only a medium crop of pears is expected. The Kootenay District anticipates a heavy crop.

PLUMS

Plums have suffered much injury from the late spring frosts. The plum, however, is very prolific in bloom, and it is not at all improbable that a sufficient number of buds will be left to make a medium if not a large crop in the plum districts of Ontario. In British Columbia the crop will be heavy, though some deductions will probably have to be made on account of recent frosts.

PEACHES

In Southern Ontario it looks as if the crop would be the largest on record. The recent frosts appear not to have done any serious injury, and fall and winter conditions were particularly good. In British Columbia some slight damage to the early blooming peaches is reported, but in all probability sufficient bloom has been left to make a full crop—Dominion Fruit Crop Report.

The Canadian Horticulturist

Vol. XXXVI JULY, 1913 No. 7

Thinning the Apple Crop a Profitable Operation

Justus Miller, Department of Agriculture, Port Hope

THINNING the apple crop is the last feature of improved orchard culture a grower will take up. The object is to improve the quality of the fruit. The first steps in orcharding are proper cultivation, pruning and spraying. In our work in these counties (Durham and Northumberland) we have found it hard to persuade many farmers to undertake these tasks. The majority of them are not ready for thinning.

Many think that it is a very expensive operation. In our demonstration orchards we have thinned trees at a cost of sixty cents a tree. These apples had to be picked anyway, and it was much cheaper to snip them off when small and allow them to fall to the ground than to pick and pack them in the fall.

By thinning, the percentage of culls is reduced very greatly. These are not only of small value themselves but they lower the value of the entire pack. Considering the increased value of number ones resulting, P. C. Dempsey, an extensive apple grower of Trenton, Northumberland County, argues that the culls thus taken away are selling really at nine dollars a barrel.

The work is in its infancy in Ontario. In some orchards in Durham and Northumberland counties, experiments have been conducted, and some also in Norfolk. W. J. Schuyler, fruit specialist of Norfolk county, in the employ of the Ontario fruit branch, states that a system of thinning will bring uniform crops. In the natural state trees bear apples uniformly one year with another. But when unfavorable weather conditions produce a failure one year a very heavy set of fruit is produced the next. The tree cannot bring this abnormal crop to maturity and at the same time develop a strong growth of fruit spurs. When the apples are thinned abnormal crops do not exist, and fewer off years occur. By thinning before the seeds are developed a great deal of food is saved for the tree also. Of course some varieties do not require thinning as do others. The Duchess, Wealthy, Snow, Russet and in some cases the Spy, are especially benefited in our counties.

In 1912 experiments were conducted in two of our demonstration orchards. In one at Colborne, in Northumberland county, a few Snow trees were selected. The apples were thinned when about the size of hickory nuts. They were taken off with thinning shears and all the work was done from ladders. The intention was to thin all clusters to one specimen and to leave no apples close enough together so as to touch each other or in such a position that they would rub against a limb or a twig when mature. The quality of apples on thnined trees was much superior to that of those on unthinned trees. But the thinning was not severe enough. When the apples matured it was found that full allowance had not been made for their increase in size.

The result from two trees under identical conditions was:

Thinned tree—Six barrels number ones; three-quarters barrel number twos and one peck of culls.

Unthinned tree—Three barrels number ones; three barrels number twos, and two and a half barrels of culls.

In an orchard at Welcome, in Durham county, another experiment was made, this time with Duchess apples. The same methods were used as with the Snows. The results were:

Six thinned trees—Seventeen barrels number ones; three barrels number twos, no culls.

Six unthinned trees—Twelve barrels number ones; twelve barrels number twos and one-half barrel culls.

In this case the thinning should have been more thorough and more severe also. The three barrels of number twos equalled the number ones in size, but lacked color, and there were no culls at all. These trees were thinned at the rate of sixty cents a tree, three hours labor at twenty cents an hour being expended on each. It will be seen that the total crop was larger in the case of the unthinned trees.

The value of thinning rests in the increased percentage of number ones. If the entire crop is sold to a buyer at a flat rate for number ones and twos, there is very little profit in undertaking this work. But if the apples are sold through associations and are pro-rated according to class, as is done by the Norfolk Fruit Growers' Association, the profit is at once apparent. Consider the two Snow trees already mentioned. The 1912 price for number one Snows paid by the Norfolk Association was three dollars and ten cents, and for the number twos two dollars. The profit per tree would be something as follows:

Thinned Tree: Six barrels number one's at three dollars ten cents, eighteen dollars sixty cents; three-quarters of a barrel number two's at two dollars, one dollar fifty cents; cost of thinning, sixty cents; total, nineteen dollars fifty cents.

Unthinned Tree: Three barrels number one's at three dollars ten cents, nine dollars thirty cents; three barrels number two's at two dollars, six dollars; total, fifteen dollars thirty cents; profit, excluding culls, four dollars twenty cents.

Orchard Demonstration in Orchard of F. W. McConnell, Colborne, Ont.

This orchard gave a net profit of two hundred and fifteen dollars an acre in 1911.

Points on Cover Crops

THE sowing of cover crops is now a regular practice in up-to-date orchard management. This practice serves a two-fold purpose. It maintains the humus content of the soil and helps to regulate the growth of the trees.

Experience has proved that from spring until about the middle of July, constant cultivation is necessary for the proper growth of the trees and the setting of the fruit. Later in the season the growth of the trees must be retarded and the trees become fully dormant at the end of the growing season, otherwise winter injury is likely to occur. A cover crop sown during July will assimilate a part of the plant food in the soil that would have been available for the trees. This crop, when plowed under in the fall or following spring, decays and plant food and valuable humus become available for the tree when most needed.

Cover crops may be classified under two heads: those that collect free nitrogen from the air and those that do not. In the former class are the colvers, alfalfa, vetch, peas and beans. In the latter are such crops as rape, buckwheat and rye.

NITROGEN COLLECTORS

Common and Mamoth Clovers are probably the most generally and the most successfully used cover crops that we have. As a rule it is not difficult to get a good catch. They give a good growth the first season, live over the winter, and produce a good growth the following spring, which when plowed down adds considerably to the nitrogen content of the soil. If good growth has been made the crop may be cut the first season and allowed to rot on the ground, provided it is cut early enough to permit of sufficient growth being made afterwards to tide it over the winter. A seeding of twenty pounds an acre about the middle of July generally gives best results.

Hairy Vetch is a close second to the clovers. It produces a thick mat of growth the first season, lives over the winter, and grows very rapidly in the spring. This last feature necessitates early spring plowing, otherwise the crop will drain too much plant food from the trees. Thirty to forty pounds is an average seeding. Vetch is a good nitrogen gatherer but the seed is rather expensive. In a dry season it is sometimes difficult to get a good catch.

Alfalfa, where it can be successfully grown, has most of the qualifications of a good cover crop Its one disadvantage is that in the less favored sections it does not produce as heavy a growth as do the clovers and is more apt to winter kill. In fovorable localities, seeded at the rate of twenty to twenty-three pounds of seed an acre, it makes a good growth the first season.

Alsike Clover makes a good substitute for the common and Mammoth varieties in such localities as Eastern Ontario and parts of Quebec. It does not require quite as heavy a seeding as these varieties.

Crimson Clover does well in parts of southern Ontario but is not as hardy as the common or mammoth. Growers advocate a seeding of eighteen to twenty pounds an acre.

Peans and Beans can be grown to advantage as cover crops. Field peas sown with a nurse crop of barley or oats make a heavy growth. Such a crop, however, does not survive the winter. Soy beans and horse beans sometimes give good results but have the same disadvantage.

Where leguminous cover crops can be successfully grown the second class is not recommended unless the soil is unusually rich in nitrogen. They are to be recommended rather for the purpose of enriching poor soils to make possible the growth of leguminous crops.

Buckwheat is the most useful non-leguminous cover crop we have. It makes good growth on poor soils and a catch can be obtained even when sown quite late in the season. It is a splendid crop for rapidly adding humus to the soil. It does not, however, live over winter. Five or six pecks of seed an acre gives a good stand.

Rye is a hardy crop but can only be recommended as a soil enricher preparatory to the sowing of clover.

Rape is a good humus producer but requires better soil conditions than does buckwheat The tops die down in the winter but some growth is made the next spring in preparation for seed production. Six pounds an acre is an average seeding.

The Cultivation of Small Fruits

Jos. Frappe, Stirling, Ont.

THE cultivation of the soil, for strawberries and raspberries, to loosen the top surface should be commenced early in the season. For small patches of strawberries a common garden rake will do. For large patches I have used a wheeled hoe with a rake attachment for each side. If this is done there will be little danger of dry weather killing the plants as is often the case.

A cultivation and hoeing about once a week (especially in warm, moist weather when the weeds grow rapidly) is much better than to wait two weeks. The work is then easier, quicker, pleasanter and far better for the plants.

The up-to-date fruit grower or gardener does not hoe just to kill weeds. His first great object is to make a loose layer of earth—a dust mulch, so that the great quantities of water that are stored in the earth, and which rise by capillary action, may not escape by evaporation, but remain to supply the myriads of rootlets. Incidentally he kills the weeds. From this point of view it is obvious that the best time to cultivate is after a good rain.

Cultivate shallow. Deep cultivation dries out the ground. In hoeing after the runners have freely started it will pay to place them more in line with the rows. When sufficient plants are formed if the runners are kept trimmed, it will give increased vigor to the plants already formed.

The blossoms should be removed the first year. The strain of bearing fruit is too much for young plants. With large strong plants and great care in planting a few berries may be allowed to mature.

RASPBERRIES

The red varieties of raspberries which sucker freely (i.e., send up young plants at different places along the roots) have been with me, the most pro-

Bush Fruits are Profitable when Well Cared for

A British Columbia Cherry Orchard in Bloom

fitable. They keep in good condition longer and the prices received have been the best. It is not wise to let the suckers grow unless they are in the hill or near it.

In the case of the raspberry, cultivation has three purposes: To make the all-important "dust mulch," to prevent weeds, and to keep suckers from growing. But cultivation answers for all three.

I allow four to eight young plants to grow up in each hill. The nearer these are together the better. It must be remembered that the young plants that grow the first year are the ones that bear the berries the next year, after which they must be removed.

My object is to get the canes I allow to grow to have as good a growth as possible. For this reason I remove all but the ones I wish to keep, quite early in the season, when they are only tender sprouts from one to two feet high. Here are some reasons why I do this: It is more easily and quickly done, the work is done before the fruiting season, and consequently the strength that would be used in these canes is partly used to make bigger berries and more of them, but what is highly important the young plants which remain have more than double the growth, thus ensuring a good crop the next year; if many of these new canes are allowed to remain they make the hills bushy and the pickers will not get all the berries. This alone is inducement enough to have it done at the proper time. It makes the removal of the old canes a much easier task. The young plants grow more stocky and branch out more if the ends are pinched off after they are five or six feet apart. Cultivation late in the season after picking is not wise, as it induces a growth of tender wood that does not ripen and is likely to winter kill. Old canes are best removed late in the season, in the winter or even spring.

Cutting out the No. 3 Apples

L. D. Robison, N. S.

Improvement in the quality of the apple has not kept pace with the production. In the mad race for more fruit, too little attention has been given to "better fruit." As a poof of this assertion, of the ninety thousand barrels of Gravensteins produced in the Annapolis Valley last year thirty per cent. graded ones, while fifty-eight per cent. graded threes. I propose in this article to show how the threes may be largely eliminated. It involves better pruning, better cultivation, better fertilization, better spraying, better thinning.

PRUNING

Not only should all dead, diseased, and crossing branches be removed yearly, but the whole tree should be opened up to air and sunshine by judicious pruning Careful pruning not only increases the size of the fruit, but greatly improves its color; for color is now known to depend wholly on sunlight. Then, too, proper pruning has much to do with the production of fruit free from spot, for it is much easier to reach every part of a well pruned tree with spray, and it dries out sooner after a rain or heavy dew.

CULTIVATION

Cultivation gives handsome returns in the Annapolis Valley. Fall plowing about three to four inches deep is the usual practice. It possesses the following advantages over spring plowing: Fall plowing makes it possible to work the soil several days earlier in the spring; it is an aid in the conservation of moisture; it covers the dead leaves which carry the spores of apple scab.

In the spring, as soon as the ground is fit, the orchard should be thoroughly harrowed Afterward, the surface of the soil should be stirred lightly every week or ten days, for the destruction of weeds and the conservation of moisture. A cover crop, preferably one of the legumes, should be sown about July 1st, later if the season or the soil be dry, earlier if wet.

FERTILIZATION

Annual crops of high grade fruit are only possible in orchards abundantly supplied with plant food. Stable manure at the rate of twelve tons an acre applied annually will give excellent results. Equally good results can be obtained from fertilizers along with cover crops. While no formula can be given that will be equally good for every orchard, the following may be suggested: Two hundred pounds nitrate of soda, three hundred and fifty pounds acid phosphate, and one hundred pounds potash. These amounts applied yearly are usually sufficient for an acre of orchard in full bearing. The nitrate of soda should be sown when the trees are

in blossom. Slag at the rate of five hundred pounds an acre may be substituted every few years for the acid phosphate with advantage. It should be sown in the fall.

The great importance of thoroughly spraying, so far as the elimination of number threes is concerned, can scarcely be over-estimated. While pruning, cultivating, fertilizing, and thinning all have an important bearing upon the production of first-class fruit, these are of little value where spraying has been neglected or carelessly done. In making dilutions of lime-sulphur, the hydrometer should be used. Winter strength is 1.03, summer strength for use on foliage, 1.009.

Arsenate of lead at the rate of two and one-half pounds to forty gallons should always be used in spray for foliage, both on account of its fungicidal value as well as its insecticidal value. It should first be reduced in water and then added to the dilution while the agitator is in vigorous motion. A good power sprayer is almost a necessity in an orchard, producing upwards of six hundred barrels of apples. It should have a mechanical agitator, the blade propeller type is the best, and be able to maintain a constant pressure of about two hundred pounds on four-disc nozzles.

Spray for scab and bud moth a little before blossoms open; for scab, coddling moth, etc., when two-thirds blossoms have fallen; for scab, coddling moth, green apple worm, etc., ten days after blossoms have fallen; for scab, fly speck spot, young bud moth that defaces apples, etc., when the apples are a little larger than crabs.

Spray thoroughly; cover every part of the trunk, every limb, every twig, every leaf.

THINNING

Thinning is now a recognized part of orchard work. Its object is first the removal of spotted, deformed, and worthless specimens, and second, the further reduction of the fruit so that remaining specimens may grade as number one. This work should be commenced soon after the June drop, and may be continued two or three weeks. The degree of thinning will depend upon the variety. The general rule is to leave only one fruit to each fruit spur, and then, if necessary, continue the thinning till the apples are from four to six inches apart, depending upon the variety. Of course it means work, but it also means number one apples instead of cider apples. Therefore, it pays a handsome profit. The time lost in thinning is largely made up in the greater ease in picking and grading.

Studies on the Montreal Market Muskmelon

Prof. Wm. Stuart, Burlington, Vt.

(Continued from June issue)

THERE are two distinct types of melons under cultivation, one of which is roundish oblate, the other more or less oblong, the first type being slightly deeper ribbed than the latter. These two do not seem to be separated out by the growers, in fact, when the question was put to a grower as to which type he selected for seed purposes his reply was almost invariably that he selected from both, provided the qualities of netting, solidity, thickness, and flavor of flesh were satisfactory. As none of the growers interviewed made a practice of hand fertilization of melons intended for seed purposes, it is not at all certain that either of these types is fixed.

SEED SAVING

Interesting information regarding seed saving was obtained from one of the growers. This party removes the seed melon from the vine at about the time it begins to separate from the stem, and keeps it in an ordinary room temperature in a dry place until it is fully ripe. Then, to avoid the loss of the melon ,a two inch square section is cut out, the seeds shaken out, the removed section refitted into place, and sealed in with a gum label, after which process it is ready for shipment. The party to whom the shipment is consigned, being advised that seeds have been removed from one or more melons in certain packages, is on the lookout for them, and loses no time in placing them in the hands of the consumer. The grower receives full price for such melons and thus secures without loss to himself his future seed supply.

Seed from the earliest ripening melons are generally used for first crop plantings in the belief that an earlier ripening crop will be secured from the offspring of such seed. Attention is also paid to the selection of seed melons borne as near to the base of the plant as possible. Selection in this case is made on the assumption that in the offspring a greater proportion of the fruit will be borne near the base of the plant, a very desirable attribute, especially in the case of frame grown melons.

MELON PACKAGE

The style of package most commonly employed by the commission dealer in shipping melons to distant markets is that of a large wicker basket closely resembling what in some sections is termed a clothes basket. These baskets just hold a dozen melons, the melons being closely packed in rather short, fine-stemmed hay. The basket is shipped without cover and no attempt is made to fasten the melons in place, the express company being held responsible for their safe delivery.

The only exception to this method of shipment noted by the writer was in the case of a grower who shipped his product direct to the consumer. A strong wooden case of sufficient depth to admit of a single layer of melons and of sufficient size in length and breadth to hold a dozen was used with satisfactory results. If an abundance of hay is employed the melons reach the consumer without bruise or injury of any sort.

Munson System of Training Grapes

W. T. Macoun, Dominion Horticulturist, C. E. F., Ottawa

In Munson's "Foundation of American Grape Culture" there is described the Munson three-wire trough trellis system of training grape vines. Can you inform me whether this system is in use to any extent, and if there are any disadvantages in it from the point of view of a Canadian vine-grower? His system appears to me to be founded on good common sense, but as I have never seen any vineyards in which it is in use, I would like a little information from some outside source before considering it further.—A. F. W.

The Munson system of training grape vines is not used to any extent in Canada. The system may be described briefly as follows: Posts are put in the ground about twenty-four feet apart, with from four and one-half to five feet of the post above ground. A three-eighth inch hole is bored in each post about four feet from the ground and six inches from the top of the post to admit the lower wire. Crossarms of two by four inch wood (one by four is sufficient except for end posts) and two feet long are held to the side of the post near the top by wire, without nailing.

Within an inch of each end, and one inch from the upper side, of the cross piece is bored a three-eighth inch hole. Number eleven galvanized wire is run through the holes and securely fastened, thus making a three-wire overhead trellis. Only the wire through the post need be put on at first. A single cane is allowed to grow, and this is fastened to the lower wire when it reaches the desired height. Before the next spring this is cut back about two-thirds. It will soon reach the wire this season, and two canes are trained out, one in each direction, along the middle wire. The next year, and in future, there will be four arms, two in each direction, along the lower wire.

The new growth grows over the wires and hangs down, and it is claimed for the system that the summer pruning is very light.

The fruit is a little easier to pick on the Munson trellis, but not sufficiently so to offset other things. Cheapness in growing grapes is desirable, and on this account it is not likely that the Munson system will be generally used in Canada for some time.

A Barrie Garden Possessing Novel Features

TWO of those who have assisted in keeping the Barrie Horticultural Society in a leading place among the horticultural societies of Ontario, are Mr. Donald C. Campbell and his daughter, Miss Mary E. Campbell. From their garden at "Glen Almond" have come the largest exhibits and a big percentage of the prize-winners at the annual exhibitions held by the Barrie Society in recent years. Miss Campbell is vice-president of the society.

Some of the Walks and Floral Effects in Mr. Campbell's Garden

From his boyhood days at Dunblane, Scotland, Mr. Campbell has been a lover of flowers. Thirty years ago he bought a few acres of land at the westerly limit of the corporation of Barrie. Fine pines and other timber covered the property, and through it ran two sparkling streams of spring water. By patient industry Mr. Campbell and his family gradually converted the timber-clad slopes into what is to-day one of the best gardens in Barrie. The soil is sandy for the most part, and requires the use of considerable fertilizer as well as a liberal supply of water. The latter is furnished from a system of water-works planned and constructed by Mr. Campbell, the creeks being utilized to drive a ram and a water-wheel which force the water to a reservoir whence it is piped to different parts of the grounds. At practically no annual expense he thus has an abundant and convenient supply of water, the advantages of which many readers of The Canadian Horticulturist will possibly appreciate.

In addition to getting his water and his power from the stream, it affords Mr. Campbell a very unusual feature for his grounds in the shape of a trout pond, which is stocked with magnificent specimens of the speckled trout. A number of these are over sixteen inches in length, and they have become so tame that they will seize a finger and allow Mr. Campbell to lift them in that way. The sight of such a school of beauties is enough to make the blood of an angler tingle, but lest any reader should plan to surreptiously visit the place for a morning's sport, it had better be stated that this pond is very well guarded with a network of barbed wire fences. This precaution Mr. Campbell took after a couple of boys paid a daybreak visit and cleaned out the pond. The limpid waters of the little pond enframed in foliage is a charming spot and a favorite place of visit for the townspeople.

In cultural methods, Mr. Campbell follows much along the usual lines. He raises all his own plants from seed, using hot water pipes instead of manure to heat his hot bed. Beneath a bed of about four and a half by ten feet he has forty feet of piping, and uses no manure whatever. By this method he finds that it is not necessary to sow the seed so early, as four or five days is sufficient to bring it up. When the writer visited the garden, about the middle of May, all the first sowing had been transplanted into cold frames and another lot of seed imbedded in the soil.

Last year Mr. Campbell tried an experiment with some gladioli, leaving them in the ground all winter. Much to his surprise they furnished the finest bloom he had and won first prize at the society's flower show.

Sweet peas are grown very successfully without using the trench method. The ground is treated with a generous dressing of well-rotted manure and the seeds planted in single rows and at ordinary depth. Dead boughs are used

A Glimpse into the Garden from another point

Mr. Campbell and his Trout Stream

for training the vines and these are placed in the ground when the peas are planted. Tendrils lay hold of the branches much more readily than wire, which is also inclined to burn the tender plants in hot weather. Last year peas from this garden captured first prize.

Bird life abounds in this garden. Mr. Campbell has built bird houses and protected the birds, not only because he likes them but because he finds that they are good friends to the garden, in destroying insects.

Although Mr. Campbell is in his seventy-first year, there is a lightness and briskness in his step and a brightness in his eye that many a young man might envy.

Summer Care of House Plants

Many people are in the habit of putting their house plants out of doors during the summer. Some turn them out of the pots and plant them into the open ground. Others sink the pots with the plant in it up to the rim in the ground.

These methods of summering plants are resorted to because the owners think they save trouble by them. They are under the impression that plants so treated will take care of themselves, and consequently they save a good deal of labor. This is a mistake, however, for if one expects to get the best results from one's plants they must have care and attention all through the summer.

It is true that a plant turned out of its pot and planted into the open ground will make a stronger growth than if kept in its pot, and it will make the growth without any attention from its owner. But when fall comes, and it is necessary to lift and pot the plants for removal to the house, a large proportion of the roots will be sacrificed during the operation. Notice a plant that has been growing in the open ground all summer and then lifted and potted in the fall; the disturbance of the root system, and consequent loss of the vigorous growth which characterized it during the summer, gives you a very unpromising looking specimen. Such a plant will generally require all winter to recuperate, and during recuperation very few, and more often no flowers, are produced. Therefore nothing is to be gained by putting it in the garden except that it takes care of itself. On the other hand a good deal is lost because the plant is in poorer condition than it was in the spring after having done a good winter's work. Taking these facts into consideration one is bound to admit that the labor of lifting and re-potting would offset all the attention that would have been required had they been left in their pots.

"Plunged" plants generally suffer from lack of moisture at the roots. The soil about the roots appears moist and from this one gets the impression that the soil at the bottom of the pot is in a similar condition. An examination will generally reveal the fact that such is not the case. The pot prevents the soil from absorbing a sufficient amount of moisture from the surrounding soil and unless one is careful to watch the plants and water them freely, they are almost sure to suffer from dryness at the roots.

It will be noticed that plunged plants never exhibit that vigorous, luxuriant growth which characterizes plants grown in the open ground. The chief factor in the difference of development is lack of sufficient moisture at the roots. To give them the water they need requires about as much work to take care of them as it would require if kept in pots on the veranda, where they can be given shelter from strong winds and sunshine.

KEEP THEM IN POTS

It is advisable therefore to keep plants intended for next winter's use in pots during the entire season. Give them a place on a partially shaded veranda, or under a shed with a slat roof. Kept in either of these places they are to a great extent under control. Water can be freely given to those whose growth it is advisable to encourage and withheld from those requiring a resting spell, thus keeping them almost dormant. The sunshine can be tempered to the needs of each specimen. Little attention can be paid them which if put in the garden they would go without; and the secret of successful plant growing depends to a great extent (and to a much greater extent than is dreamt of in many an amateur's philosophy) on these little attentions.

ENTHUSIASM NEEDED

To be a successful plant grower one must go about it enthusiastically but carefully, for each plant has certain characteristics and requirements of its own, which cannot be ignored.

Plants summered as suggested very often do not require complete re-potting in the fall, simply the removal of the upper portions of the soil in the pot and the substitution of good rich fresh earth. The result will be that they will come to the season of removal to the house in the best condition possible to stand the trying change.

Plants intended for winter use should never be allowed to bloom during the summer. They should be encouraged to store up energy for the coming season.

The Trout Pond and Weir in Mr. Campbell's Garden

Success with Sweet Peas

H. M. Lay, Walkerton, Ont.

MOST authorities urge the early planting of sweet peas in heavy soil. My garden has a solid clay foundation, and I find it advisable to prepare the ground in the fall. This has been done by digging trenches as deep as the clay substratum will permit, and manuring heavily with good rotten stable manure.

Sowing in the spring is done as soon as the snow is off the ground, and varies according to weather conditions. It has been effected as early as March 24th, and is usually completed before the fifteenth of April. The best results have been obtained with American seeds, although I have tried both Canadian and English. Sowing is done very thinly, at least four inches between each seed. Supports are put in position before the seed is up as this avoids injury to the young seedlings.

The young plants seem to take most kindly at first to wire netting, but I have largely used two by two inch posts, about seven feet long, inserted about a foot in the ground and about ten feet apart in the row. Double headed tacks are driven into the posts, about four inches apart, before they are planted, and through these strong twine is strung. The end posts in the row should be substantially guyed.

During the growing season constant attention is required in tying the haulms to the horizontal strings with raffia. This keeps the bloom sprays straight. After the plants are up frequent cultivation and weeding is persisted in accompanied by a good dressing on both sides of the row, of good short barnyard manure. Towards the end of July feeding with liquid manure is commenced. Changes are rung on nitrate of soda, sulphate of potash, ammonium sulphate, soot water, Rex fertilizer, and infusions of poultry manure. These have the best results if given after rain or watering. A sprinkling of wood ashes along the rows is given early in the season.

Flowering usually commences about the end of June. In order to keep a constant succession of bloom until well on in October the flowers must be gathered so frequently that no pods are formed. In the very hot weather blooms intended for exhibition are kept from burning by some growers by being shaded with widths of cheese cloth stretched on frames above the rows. If one had time to take this precaution I believe that they would be well repaid, as some of the red and crimson varieties especially are soon spoiled by the midday heat. Partial experimenting on this line last summer convinced me of the benefit of shading.

The sweet pea is one of the most charming of flowers responding in the most generous fashion to the care of the gardener. After a lavish and brilliant display of blooms, some of which gained recognition at the Toronto and London fall exhibitions, throughout the months of July, August and September, the warm days of the late autumn still found many a beautiful spike of pink, lilac, crimson and white gracefully nodding above their gray green hedges.

Angel's Trumpet

Bernard Baker, Whitby, Ont.

About the middle of May, 1912, I brought from the cellar a tub which contained the skeleton of a big nine-year-old Angel's Trumpet. I pruned back the bare branches and gave it some fresh soil. Soon it began to show signs of life, and leaves started to come out, long entire leaves of a rather light green color. The plant gradually grew until in September it reached the height of six and one-half feet.

Buds began to form in August and grew steadily. The flowers, tightly closed, broke through the gamopetalous calyx and extended to full length before opening. On the tenth of September, the first flower opened, and on the twenty-fifth there were at least fifty perfect flowers out at one time. The average flower was about twelve inches long and from five to six inches across. Inside they were a beautiful waxy white, with long whitish stamens and pistil. Without, the corolla was not nearly so waxy in appearance and not quite so pure in color.

One could best realize the full beauty of the big flowers at night when they were fully expanded. The waxy centre sparkled in the lamplight and the purity of the whiteness seemed then most striking. At night, too, the many flowers gave forth a pleasing spicy fragrance which permeated the air. In the daytime some of this beauty was lost, for then the flowers, with the exception of the very oldest, closed and the fragrance was not nearly so noticeable.

The Sweet Pea Beds in Mr. Lay's Garden, which produced the First Prize Blooms at the Toronto and London Exhibitions

Mushrooms out of Doors

John Gall

MUSHROOMS can be grown as successfully out of doors as they can in houses or under the protection of sheets; but it is a crop that the grower must take special pains in preparing for, or failure will be the result. Mushrooms may be grown in meadows by inserting pieces of the spawn in the turf at distances of about six to seven feet apart. The proper way to do this is to cut a hole about one foot deep and one foot wide in the turf, taking care to save the top sod to place down again.

Fill up the hole with fresh horse manure and the short, littery straw which accompanies it in equal quantities. The manure should be exposed to the weather for a fortnight for the purpose of drying, and must be protected from rain. At the end of this period put it up in a good-sized heap to ferment. Open it out in about eight days to let out foul steam, then put up again for eight days, and open afterwards in the same manner in another eight days. The manure then will be ready to place in the holes and the spawn can be inserted in it.

When filling the holes with manure, bear in mind that room must be left for the sod to be placed back at the same level as it was before. Press the manure into the holes as hard as it is possible to do so, and always bear in mind it must be in a fairly dry condition.

Break each cake of spawn with the hands into about a dozen equal parts, burying one piece in the manure in each hole, using also the fragments which may happen to fall from the pieces. Plant deep enough to allow a quarter of an inch of the manure to cover the spawn; then place over the manure half an inch of the soil which came out of the hole, pressing it hard down, and finishing by placing the sod of earth with the grass on back in its place, treading it firmly down. The best time to do this is in the month of July.

OUTDOOR BEDS

For mushroom beds out of doors the manure is prepared in the same manner, but it must be from corn-fed horses. The beds should be placed in some well-sheltered, shady position, as mushrooms are difficult to produce during the summer months on account of the heat then usually prevailing; therefore, have the beds placed where they can be kept shady and cool. They should be built in round-topped ridges two and a half feet wide and the same in height.

In building, tread down as firmly as possible. Insert a thermometer in the bed about eight inches deep as soon as it is completed. The heat will probably rise to about ninety degrees Fahrenheit in the course of about nine days, after which it will begin to fall. Immediately it falls to seventy-five degrees it will be time to spawn the bed.

The spawn should be prepared in the same way as for the turf, and the pieces inserted ten inches apart all over the surface of the bed. The beds must be protected from rain by covering with straw, mats, or some such material. In the course of a week after the spawn has been inserted it will start to run, meaning that tiny white threads will radiate from it into the manure, and a sort of mildewy mould appear round it. It will now be time to apply a coating of loamy soil to the surface of the bed to the depth of about half an inch when well beaten down hard with the back of the spade. The work is now completed, excepting that the bed must be kept dark and protected from rain by being covered over.

I have found it a good plan to place a thermometer on the surface of the bed under the covering. An effort should be made to keep the temperature as nearly as possible to about sixty degrees Fahrenheit. If it is found below this figure, more covering must be added; if above this, some must be removed. The beds should be uncovered in about five weeks' time, brushing away any mould or dirt which may have gathered on the surface. If the soil should at any time appear dry, give the bed a watering with tepid water (not cold), and cover up again as before. In about ten days' time mushrooms will make their appearance in good numbers.

HOW TO GATHER THE CROP

When gathering mushrooms, do not cut the stalks, but give each one a gentle twist with the fingers, pulling up with it the whole of its stalk and the small pieces of roots usually attached to it. A good mushroom bed remains in profit from eight to ten weeks. Afterwards it should be taken up and used for greenhouse purposes or applied to the land. If a constant supply of mushrooms be desired a new bed should be made up about every six weeks. Your first bed should be ready for spawning early in July. In purchasing spawn from your seedsman, you should stipulate for it to be at least less than a year old.

Cabbage and Cauliflower Culture

'Geo. Baldwin, Toronto, Ont.

CABBAGE and cauliflower are two of the most popular and wholesome vegetables that we have. Both are of the one family. They are not appreciated as they should be, for two reasons: First, because when growing them for ourselves we do not give them sufficient attention, and, second, because we cannot always get them fresh from the corner grocery or vegetable waggon.

The cabbage is used in three different forms, namely, sliced raw cabbage, the ordinary boiled cabbage, and the salted or sourkraut, the German nation's fancy dish. The first form, raw cabbage, is

Raspberries with Beans growing in between. A Peterborough garden photographed in June

A Corner of St. Catharines Fruit and Vegetable Market. Mr. W. H. Bunting may be seen.

the most wholesome form of vegetable, and healthful, and while the cabbage and cauliflower are popular, we do not see as many back gardens with a few rows of them as there should be. A few timely hints as to seed, soil and cultivation may be of interest and helpful to some.

As the time is past for sowing seeds for early cabbage and cauliflower, get seeds at once for your main or fall crop, taking your choice from the three best varieties which are for cabbage—Henderson's Summer, Danish Ballhead, and Glory. The latter is my favorite. Sow the seeds thinly in a warm corner of your garden a half inch deep, in rows four or five inches apart. Leave the seedlings until they show their second pair of leaves, before planting them into the space allotted for them.

PREPARING THE SOIL

The preparation of the soil is vital, although, be it understood that cabbages like corn, will grow in almost any kind of soil, but not to the perfection they will on good soil. Clay loam is the most suitable. In the event of your soil being of a clay nature, endeavour to get some sand to incorporate with the clay, or if of a sandy nature try to get a load or two of heavier soil. In any case it is essential that you have some well decayed manure to dig in. Dig the soil the full depth of your fork or spade and turn in as much as three inches of manure if possible, because it improves the texture of the soil, while the fertilizers do not. It also is invaluable for supplying the necessary humus.

In the event of your being unable to procure manure, use one pound of nitrate of soda to every four hundred square feet of soil. Throw this on broadcast, raking it in before setting out the plants. Set your plants out about two feet apart each way so as to give them a chance to get lots of air and enable you to use the hoe for cultivating until you are stopped by the cabbages touching one another. It is very necessary to continually cultivate, especially in dry weather.

INSECT ENEMIES

The greatest drawback to cabbage growing is the many different insects which invariably attack the plant at different times. The principal ones are three in number, and include the cutworm, the cabbage maggot, and the green caterpillar. The first two attack the plants in their infancy and both at the roots. The first gnaws the stem right through and the second eats off the fibrous roots, causing the plant to wilt and die. Last of all comes the green caterpillar, and just at a time when the heads are fully formed and you think that you are going to have a good crop.

One or all of the following remedies, while harmless in themselves, are sure death to the three pests mentioned: A dusting of lime (air slacked) mixed with equal parts of powdered sulphur, put on with an old pepper box about three or four times during the season will do the trick. Scatter it on and around the plant. Another good remedy is a half-pound of pyrethrum powder mixed with two pounds of common flour, sprinkled on and around in a similar manner. These remedies are equally good for savoys and cauliflower. Should you desire to grow some savoys, Drumhead is the best.

The cauliflower is the most highly appreciated of the whole cabbage family owing to its most delicate flavor. There is no reason why you cannot have as good cauliflower as cabbage. The secret, if it be a secret, of a most delicious and tender cauliflower is to keep it growing all the time by constant attention in the way of cultivating and watering in dry weather The cauliflower is the most moisture-loving of the whole family.

To make it an ideal head, it must be properly blanched or bleached by tieing or pegging the leaves up over the top to keep the sun's rays off. You will then have a beautiful snow white curd, even, uniform texture, and the absence of small green leaves sprouting between the sections comprising the head.

Spraying Potatoes

M. B. Davis, B. S. A. Bridgetown, N. S.

Spraying potatoes is an important subject. This operation must be conducted in a thorough manner to control the potato bug and the potato blight. The following spray is a good combined fungicide and insecticide: Lime, four pounds; copper sulphate, six pounds; water, forty gallons, arsenate of lead, two pounds.

The foregoing mixture is made the same as the four four forty Bordeaux, and should be applied as soon as the plants attain four or five inches in height. Spraying must be continued as the plants grow and produce new surface for the ravages of the bug and the blight. If you spray often and well, nothing need be feared from either of these diseases.

A Simple Garden Tool

O. L. Haviland, Boston, Ont.

The accompanying illustration shows a berry pruner which I have used with comfort and satisfaction. Upon thinking it out, I had one made by the blacksmith. It suits me better than the rasp-

berry hook which is generally used, as there is more draw to the blade and it does not pull the cane enough to loosen the roots of the adjoining cane.

I had the shank turned up so as to let the knife set flat to the earth, thus leaving shorter stumps. The blade is six to eight inches long, and is sharp for its whole length. It can be made any length.

Currant bushes should be dusted with white hellebore or paris green; or sprayed with a decoction of hellebore, at the first appearance of currant worms. Thorough cultivation should be practiced at all times.

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March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912...	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each issue in 1907, 6,627
" " " " 1908, 6,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912. 11.057
June, 1913 12,003

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs with in one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST.
PETERBORO, ONT.

EDITORIAL

BETTER PACKING NEEDED

The time has come for a change in the packing methods of some Ontario fruit growers. A number of unscrupulous, or to say the least, careless packers, are damaging the reputation of Ontario fruit as a whole.

If Ontario fruit is to hold its own on the rapidly growing market of the West, Ontario growers must adopt more extensively the box pack, especially for number one fruit. But with either the box or barrel packs honest packing methods are a fundamental necessity.

In a letter recently received by The Canadian Horticulturist, Rev. J. A. Andrew, a Manitoba subscriber, says in part:

"A year ago last fall I purchased a barrel of Ontario Fallawaters. All were badly bruised, three-fourths were wormy and many were punctured by having fallen on stubble. A barrel of Golden Russets also was small, wormy and bruised. The entire carload was of about the same quality. Last fall I got some Spys. These were small, unevenly colored and bruised. They had evidently been picked too soon. These aples were from western Ontario, were branded with the shipper's name, and as number one apples. When such fruit is received here I feel ashamed to say I am from Ontario."

P. W. Hodgetts, Director of Horticulture for Ontario, speaking before the Northumberland and Durham Fruit Growers' Association, quoted a Western market commissioner as saying:

"There are just enough bad packers in Ontario to give it a reputation as a second rate fruit country."

N. B. Ireland, now of Saskatoon, Sask., states:

"Having had years of experience on the market at Hamilton, Ont., I feel safe in saying that Ontario can send us as good fruit as comes in from any other place. What is wanted is a strict law that will make dishonest packing impossible."

These opinions, coming as they do from widely divergent points in the west, should convince Ontario growers of the need of an immediate improvement in packing methods. The status of Ontario fruit on the western market is at a critical stage. British Columbia growers are organizing on a large scale and are making every effort to better their chances on that market. Their enterprise deserves to and will meet with success. Nova Scotia growers are now competing for the same markets. It is time for the Ontario grower to be up and doing.

PACKING LATE VARIETIES

There is an old saying, "It is better to take pains than to let pains take you." This axiom possesses additional significance when applied to the fruit grower. Judging from a recent report of E. H. Wartman, Provincial Fruit Inspector, possibly some consumers, who this past spring purchased late keeping varieties, wished that the packers had taken a little more pains and saved them the painful feeling of having been "done" on their purchases. Referring to the packing of late keeping varieties, Mr. Wortman says:

"During early May, while examining Golden Russets, Spy, Ben Davis and other varieties, I found all the way from ten per cent. to fifty per cent. in number one barrels of these varieties in a rotten condition. Upon taking up specimens I could see that each one had received an injury when placed in the barrel or box, such as a puncture caused by handling, a diseased spot or an insect mark. I put this condition to the credit of a little oversight or carelessness on the part of the manipulator."

A lack of good judgment on the part of the packer is responsible for the presence of most of this damaged fruit. Instead of saying, "This apple is practically as sound as a dollar; a little blemish like that doesn't amount to anything," the packer should ask himself the question, "What effect is that blemish going to have on that apple six or seven months from now?"

In the packing of late varieties directly from the orchard, the most rigid care is necessary. It needs a sharp eye indeed to detect all the slight injuries that will afterwards cause decay. Many growers prefer, when possible, to store the fruit until about the Christmas season and pack them. Slight bruises, which at picking time were hardly noticeable, will then be easily detected. By eliminating all fruit so affected and by careful packing, the keeping qualities may be assured as well as greater satisfaction on the part of the buying public.

SMALL PARCELS BY POST

The Federal Government has promised the early adoption of a parcels post system for the Dominion. The enormity of the business transacted through the medium of the parcels post in the United States since its adoption at the first of the year, justifies the Government in moving slowly. It will take time to evolve a system that will be adequate to cope with the large amount of business that will undoubtedly be forthcoming.

There is no reason, however, why we should not have an early installment of this much needed addition to our postal facilities. A parcels post for packages weighing up to five pounds would not unduly tax the present facilities, and would serve as a guide to the Government when arranging for the extension of the system. It is on small parcels that the express companies' charges, both in Canada and the United States, are the most extortionate. The following figures show the comparative parcels post and express rates existing in New York in January last. We quote three "zones" that are representative of the eight:

	1 lb.	5 lbs	11 lbs.
(1) Not over 50 miles—			
Express Rate	25c	30c	35c
Parcels Post	5c	17c	35c
(4) 300 to 600 miles—			
Express	25c	55c	75c
Parcels Post	8c	32c	68c
(7) 1 400 to 1,800 miles—			
Express	30c	80c	$1.50
Parcels Post	12c	60c	$1.32

As the table shows, the difference between the express and postal rates on large parcels is not great, but the minimum express charge of twenty-five cents for carrying a small package a few miles is unreasonable. The Government should adopt as expeditiously as possible a parcels post for small parcels at least, and give the public a measure of relief from existing conditions.

Ad. Talk

There is a law of average. A prominent authority has summed it up in the following simple and conclusive manner. He says:

"Nothing is so uncertain as the duration of the life of an individual.

"Nothing is more certain than the average duration of the life of a thousand individuals.

"We know for example that the average duration of the human life is about thirty-three years. We also know that one-quarter of the people on the earth die before the age of six, one-half before the age of sixteen, and that only one person in every hundred born, lives to be sixty-five years old.

"The operations of the "Law of Average" are not confined to the field of vital statistics. Of one thousand men, so many smoke; so many attend baseball; so many like strawberries."

You will, of course, admit the foregoing.

Did it ever occur to you, however, that there is a like law operating in connection with your advertising. If you could tell how many persons in a hundred or a thousand would like your product or would be interested in your line, you would have a pretty solid foundation on which to build. This is not so easily found out. You can at least tell roughly the class of people who would be most interested in your goods.

When you come to place your advertising, with this in view, you will consider the medium that will reach the class of people whom you are seeking. If everyone likes your product, any medium of general circulation will be good. If not one person in a hundred likes it, advertising in a medium of that kind will be of very doubtful value. You must, therefore turn to a publication, every subscriber of which is interested in your product; in other words, a class publication. In such a publication one hundred people out of one hundred are interested. The greater value of advertising in it is readily admitted.

The Canadian Horticulturist, combined with The Canadian Horticulturist and Beekeeper, is such a medium. Taken for its all-round practical value in the horticultural field, where it stands alone, it occupies a position of more than ordinary importance to the advertiser who has a product of interest to fruit men, flower and vegetable growers and beekeepers.

The growth and increasing interest along all horticultural lines will mean greater opportunities for business for you this coming year; more people will seek your products if you are willing to seek them—by advertising.

When planning your advertising this fall just keep in mind that the "Law of Average" will be decidedly in your favour, if you include The Canadian Horticulturist.

Readers state daily: "We buy articles advertised in The Canadian Horticulturist because they are reliable." That is because we guarantee the reliability of our advertisers.

PUBLISHER'S DESK

Did you notice our front cover illustration this month? You could hardly miss it. We consider it one of the most unique ever published in The Canadian Horticultourist. You will there recognize two of the humbler forms of life. In the centre appears the common and extremely virulent toad stool. Under it, sheltered from the rays of the noonday sun, with his solemn, calm, meditating eye and dignified mien, is our humble but useful garden friend, the toad, whose assistance in fighting all kinds of insect pests we are too apt to underestimate. Surely in this setting he is a subject worthy of the painter's palette!

We know that Horticulturist readers appreciate the usefulness and attractiveness of a conservatory or greenhouse attached to the home. About this time of year many of you are beginning to form hazy plans in your minds in the line of conservatory or greenhouse construction. We are preparing to give you information that will enable you to make those hazy ideas definite.

The month of August will usher in the season when greenhouse construction is at its height. The August number of The Horticulturist will be largely devoted to this subject. We have arranged for several timely articles on such subjects as "The Greenhouse for the Amateur," and "Greenhouse Preparation for Next Winter's Crops." These articles will be given additional value by being well illustrated. Whether you want a greenhouse for pleasure or for profit, you will find something of special interest to you in our August issue.

Our Second Annual Exhibition and Fall Packing Number, issued last September, was so well received by our readers that we are taking a long look ahead, and are making a special effort to give you something this year in the September number that will entirely eclipse last year's effort. Fruit picking and packing will be right to the fore in our September issue. You will be pleased to know that we have been successful in securing special articles on these two subjects by the very best authorities in the land.

A strong feature of the September issue will be the illustrations. Each article will be profusely illustrated. A special feature that will please everyone of our readers is the new cover design that is now being prepared. Watch for this issue. We know it will please you.

We would like this special September Exhibition Number to reach every fruit grower and gardener in the land. Your friends, who are not already Horticulturist readers, would appreciate your interest in them did you call this number to their attention. You have been intending to add a few names to our list of readers for some time. Why not make a special effort before our September number is out? You know, the more readers we have the bigger and better we can afford to make The Canadian Horticulturist.

Will any of our readers who have finished reading and who do not require their April copy of The Canadian Horticulturist for filing, kindly forward same to us. We have received several requests for copies of this issue, and owing to our supply having been exhausted, have been unable to fill these requests. If there are any readers who can grant us this favor it will be much appreciated.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

Hamilton

Messrs. McCulloch and Kneeshaw, of the Hamilton Horticultural Society visited all city schools in May and distributed fifteen hundred packages of seeds for the Children's Aster Show, which will be held about September fifth. Besides this, four hundred packages were given to the county schools to assist in the work of encouraging the school gardens throughout the county of Wentworth. Besides the public schools, the Boys' Home and the Girls' Home and Separate Schools were not overlooked.

Smiths Falls

The Smiths Falls Horticultural Society, among other things, has entered upon an educational campaign, and has arranged for monthly lectures by horticultural experts. So far three have been given with gratifying results. Nine hundred papers of seeds have been distributed to the school children, park improvement is going on, and there is the usual lawn and garden competitions, to be followed by a flower show in the fall.

It is encouraging to note that the interest of the citizens is becoming fully awakened to the benefit and importance of the work of the society. Several citizens have volunteered to give substantial prizes in the various competitions, in addition to those offered by the society.

Toronto

The first exhibit of the Toronto Horticultural Society for the year 1913 took the form of a flower show held in Foresters' Hall. Owing to the unusually early spring the showing of bulbs was large. Several collections that were exhibited are worthy of some comment

That of the Allan Garden adorned the platform. Behind it an orchestra was placed, adding to the pleasure of the evening. The specimen of double cherry in the collection of J. D. Hayden, of Cobourg, was much admired. T. A. Manton and Mr. Jennings had especially fine collections. Miss Blackstock showed some beautiful perennials.

St. Catharines

This year Miss L. A. Radcliff and Mrs. Perry Blain, secretaries, made a visit of the city schools, as well as Port Dalhousie and Merritton Central, where they placed in the hands of every pupil who desired it a package of aster seed. With the growth of population and the added interest in the seed planting, upwards of about three thousand packages were needed to fill the demand this year. Previously two thousand were sufficient. In the fall prizes

(*Continued on page* 182)

Reasons for Fruit Company's Failure

Editor, The Canadian Horticulturist,—In the June issue of The Canadian Horticulturist there appeared an article in reference to the failure of The National Land, Fruit and Packing Company. The failure of this company is attracting considerable attention, and the daily press is inclined to belittle the business ability of those who were in charge. As I was at one time general superintendent of the company, I wish to explain that those in charge of the operating end of the concern were not responsible for its failure.

As you know, the company was promoted and floated in the Old Country over two years and a half ago. In September, 1911, I was managing the Wentworth Fruit Growers' Association at Hamilton, and had quite large interests there in the orchard business. Mr. T. R. Rolph, acting for Mr. Evans, president of The National Land, Fruit and Packing Company, wrote and asked me to take charge as general superintendent, at a salary of $2500 a year. I soon discovered that the general superintendent was not to be given full sway, as Mr. Evans himself took full charge of the finances. In spite of the fact that I sent numerous protests to the executive showing the impossibility of some of the schemes which they were advancing, matters did not mend.

As soon as the crop of 1912 was safely harvested I tendered my resignation. Mr. Evans had gone to the Old Country and left us with practically no money on hand for handling the output of about one hundred and fifty thousand barrels of apples from the orchards that had been leased. The situation is self explanatory.

One of the main factors contributing to the downfall of the concern was, I believe, the method in which the six hundred and sixty orchards throughout the country were leased. A local man in each district was offered a royalty of ten cents a tree for ten years on all orchards rented by him. The result was that such a man would go out and rent everything in sight, and the company found themselves with some pretty mean deals on their hands. Even with these drawbacks there were many of the orchards that would have paid well under proper management.

I will cite an example of some of the peculiar ideas that I was expected to carry out: I was instructed by the executive to buy two hundred carloads of culls for the evaporator at Mimico. As the evaporator was only partially constructed at the time, I protested against this course, but to no avail. By the first of December there were as many as seventy car loads of these apples on the track at Mimico at one time. Most of these were badly frozen and in addition the railway company sent in a demurrage bill of over two thousand dollars. The result was that these apples cost the company about ninety cents a barrel on the track at Mimico. This will give an idea of the difficulties I had to face in trying to make this venture a profitable one.

It now appears that the reorganization of this company will not be possible, but it is not the impracticability of the scheme itself that should be found fault with, but the extreme extravagance in operative methods. I would have left the company sooner than I did had it not been I thought I should stand by the company until the enormous crop had been gathered. I do not wish to criticize too harshly Mr. Evans or other members of the executive, as they evidently did not realize just exactly what they were up against. The fact that this company was operated in two of the worst years known in the apple business for some time past, is no doubt partly responsible for its failure. The farmers, however, from whom these orchards were leased are better off to the extent of thousands of dollars because of the greatly improved condition of their orchards.

I am writing you because I think that in all fairness to myself, I should not be criticized for the failure of a company that was due not to poor management on my part, but to extravagant financial methods."

Hamilton, Ont. Roy A. Carey.

A Successful Association

The success of the Wentworth Fruit Growers' Association (Ontario) has been such as to attract considerable attention, and has led to a demand for information as to how it is managed. It is conducted on the true cooperative principle. The object of the association, as one of its by-laws states, is "to encourage the fruit growers in the County of Wentworth, who are interested in the improvement of the quality and quantity of fruit, to cooperate for the purpose of securing a better and more uniform system of packing and marketing their fruit."

This organization is not a joint stock company. It has no stock and is so managed that no capital is needed. An annual fee of one dollar entitles the members to all the privileges of the association and to one vote.

At the annual meeting, an executive of seven members is elected by ballot. The executive appoints a member to act as manager and secretary-treasurer. The manager is paid by commission on a sliding scale basis. He receives twenty cents a barrel up to five hundred barrels, the commision dropping to twelve and one-half cents on more than one trousand barrels. He attends to all arrangements for marketing and selling the fruit. He procures good packers, who are sent out to the various orchards. He also gets quotations on barrels, spraying materials, and all orchard supplies that the members require. It is also his duty to visit the members, give advice on spraying and cultural methods, and oversee the packing.

When we state that the association is operated without capital, the question naturally arises, how is money obtained for payment on supplies? The firms from whom supplies are obtained, invoice each member and collect from him for his purchase. The packers that are sent out are paid by each member for the time that the packer spends on the place. The association has no warehouse, the fruit being shipped directly from the orchards. In case money is required to be advanced for packers or for supplies, the executive signs notes at the bank, to be paid back when the returns for fruit come in.

To ensure the production of the highest quality of fruit possible, each member is obliged to prune, fertilize, and cultivate as recommended by the manager, and must spray at least three times. The manager oversees the packing, which must be up to the standard set by the association.

To safeguard itself, the association requires the members to make all shipments exceeding five barrels through the association. An exception is made of such early varieties as Astrachan, Duchess, and St. Lawrence. In case a member wishes to make an independent shipment of more than five barrels, he must receive the permission of the manager, and must also pay the association fifty cents on every barrel so shipped. Should a member not comply with these requirements, he would be asked to withdraw from the association. So far the association has never had to ask a member to do so.

The Wentworth Association also controls the Oakville and Ancaster Associations. Last year over fourteen thousand barrels were packed and shipped, most of the fruit going to the western and Old Country markets. The larger proportion is sold to wholesalers and retailers. Shipping through commission men is avoided as much as possible. At the end of the season the apples are prorated and members paid according to actual value. Numbers of complimentary letters have been received by the association from western and Old Country fruit houses, commenting on the excellence of the pack.

The success of the Wentworth Association is materially strengthening the cooperative movement in the district. It has been due largely to the efficient work of its manager, Lorne H. Carey.

Poor Orchards Being Hit

A correspondent from that splendid apple region along the east coast of Lake Huron says: "Markets in 1912 were no good for apples. Three-quarters of the crop was left to rot on the ground." This correspondent must be considered as speaking only for a very limited area in giving the quantity of apples left to rot, yet the truth remains that throughout western and southern Ontario in 1912 large quantities of apples were sold at an exceedingly low price or not sold at all.

The reasons for this are not far to seek. First and foremost was the complete breakdown of the old system of itinerant buyers who, since the inception of the apple trade, have been the recognized means of disposing of the crop in Ontario. This failure of the itinerant buyers to appear upon the ground was caused partly by the Old Country firms refusing to make large advances, which they had always done in former years, leaving these buyers without money to finance their purchases. Second, even in the case of buyers having funds, the cooperative associations have become so numerous that they cover the ground, especially in the better apple districts, leaving only the inferior orchards for the outside buyer. Third, there was a distrust in the minds of many of the old buyers with reference to the condition of the apple market.

The net result was that in many districts where there are comparatively few orchards and where the orchards for the most part are very poorly cared for no buyer deemed it worth his while to visit them. Canadian apple dealers, with capital of their own, preferred to deal directly with the cooperative associations, where they could purchase large quantities of fruit of uniform grade, and with the grade marks guaranteed. It is not at all likely that any buyer with capital of his own to risk will, in the future, care to handle the small, ill-kept orchards, containing many varieties, of the ordinary farmer engaged in mixed farming. With individual selling it is not probable that these orchards will ever again become really worth while.—Report of the Dominion Fruit Division.

Central Packing Houses *

Alex McNeill, Chief of the Fruit Division, Ottawa

In the earlier history of the cooperative fruit growers' associations the central packing house was not usually adopted. It was the almost universal custom for each grower to take his fruit, graded and packed by himself, to a warehouse at the railroad station, where the manager of the association assembled the different varieties and grades and shipped in carload lots or quantities to suit his purchasers. It was very soon found, however, that while this improved the uniformity of the pack somewhat, it still left a great deal to be desired. This is not due always to fraudulent intent on the part of the members, although it must be admitted that there were few associations practising this method that did not count among their members some who were fraudulently inclined. Nevertheless, with the best intention, it was simply impossible to get ten, fifteen, or perhaps fifty growers to observe the same standard, with a sufficient degree of uniformity to meet the needs of the market. To overcome this difficulty the central packing house system has been adopted by practically all the newer cooperative associations.

The central packing house system consists in having a common warehouse, usually at a shipping station, where the apples can be loaded on a siding. The apples are brought from the orchard in barrels unheaded, or if unheaded, unpressed. It is absolutely necessary that they should be drawn to the packing house on spring wagons, although a few of the smaller growers substitute for a spring wagon the ordinary hay rack filled level with hay or straw. On this the apples are placed and carried with comparative safety. These are delivered to the central packing house and a receipt is taken. In the central packing house a gang of expert packers are employed who have no knowledge of whose apples they are packing. The result is that the apples of the whole association pass through the hands of a single set of graders and uniformity is secured.

Many growers who have not given this matter proper consideration object to having the grading of their fruit taken out of their hands. Nevertheless, it must be admitted that few men can be trusted to pack their own fruit. Of course, the more intelligent the fruit growers are the more capable they are of packing their own fruit. Yet even among growers so intelligent as those in Hood River, Oregon, the expert packers of the association grade and pack all the fruit. I need not go into the reasons for this. Upon the moral side, I think it will be admited that fruit growers, on the average, are constituted with enough selfishness to induce them to look out for themselves, and the line between looking out for themselves and giving the buying public a properly packed box of apples, is so indistinct that people who pack their own apples often yield to the temptation of overstepping the mark. On the other hand, men who are employed to pack up to a certain standard and who are working day by day with apples belonging to many different owners, whose fruit they do not distinguish and in whom they have no special interest, have no temptation to grade below the proper limits. There is also a purely economic reason for adopting the central packing system; individuals who pack and do nothing else

*Extract from Bulletin No. 33, entitled Cooperation and Fruit Growing, recently issued by the Dominion Department of Agriculture.

Douglas Gardens

Oakville, Ontario

IRISES

The Iris has been a neglected flower.

It is now coming to its own and becoming more popular every year. Its hardiness, its beauty of form, texture and coloring, its sureness to bloom, and its easy culture commend it to all flower lovers. It blooms the first year and every year.

IRIS GERMANICA

No. 15. Mrs. G. Darwin, white, reticulated gold and violet, each 25 cts.; 10, $2.00.
No. 21. Sappho, S. rich blue; F. dark velvety purple, 2½ ft., each, 15 cts.; 10, $1.25.
No. 26. Mandraliscne, S. and F. rich lavender purple, 3 ft., each, 25 cts.; 10, $2.25.
No. 29. Mme. Chereau, S. and F. white frilled with blue, 2½ ft., each 15 cts.; 10, $1.25.
No. 33. Jacqueslana, S. coppery crimson; F. maroon, 2½ ft., each, 25 cts.; 10, $2.25.
No. 65. Iris, Monspur, violet-blue, 4 ft., each, 25 cts.; 10, $2.00.
No. 66. Iris, Ochroleuca, white, with yellow blotch, 5 ft., each, 25 cts.; 10, $2.00.

IRIS LAEVIGATA (JAPANESE)

No. 57. Osho-Kun, Tyrian blue, with yellow blotches, late, each, 25 cts.; 10, $2.25.
No. 59. Sano-Watashi, silvery white, with golden band in petals, each 25 cts.; 10, $2.25.
No. 60. Shiratki, white with primrose blotches, beautiful, each, 25 cts.; 10, $2.25.

These prices include carriage prepaid.

☞ Be sure to plant some Irises. Plant in July and August.

JOHN CAVERS

Quick and Easy

That is the way the DAISY APPLE BOX PRESS works. A simple pressure of the foot brings the arms up over the ends of the box, automatically draws them down and holds them in place while being nailed. The fastest and only automatic press on the market.

Pat. No. 104,535

If you pack apples in boxes, this machine will be a great convenience to you and will save you time and money. Write for prices to

J. J. ROBLIN & SON

Manufacturers Brighton, Ontario

Sweet Wholesome Bread

THE kind that gives zest to every meal is made from **REINDEER FLOUR** which is a special bread flour. Housewives who use **REINDEER FLOUR** know the pleasure of baking because of the gratifying results obtained. Make a loaf with the ordinary flour on hand. Then try **REINDEER FLOUR** and ask the family which they like best. **TRY IT.**

The best grocers supply Reindeer Flour

Peterborough Cereal Co.

Simcoe St. - - Peterborough, Ont.

Good to Bake and Good to Eat, Makes the Loaf that's Light and Sweet.

THE WESTERN FAIR

LONDON, ONTARIO

The Popular Exhibition of Western Ontario

SEPTEMBER 5th to 13th, 1913

$2000.00 in Cash added to the Prize List

FRUIT AND FLOWERS

List Specially Attractive. Special County Exhibit, write the Secretary for particulars. Special Railway Rates.

Prize Lists, Entry Forms and all information from the Secretary, London, Ont.

W. J. REID, President A. M. HUNT, Secretary

become extremely expert at this work and can do more and better work, and so not only reduce the cost of production, but actually improve the grade of the product.

In the case of early apples and soft fruits that will not admit of being readily taken to a central packing house, an alternative plan is adopted, namely, sending the central association expert packers to pack the fruit in the orchard of the grower. A combination of the two systems is found to work satisfactorily in the Norfolk Fruit Growers' Association, where the greater part of the fruit is packed in the central warehouse, but, in addition, expert packers from the central packing house are sent to put up the fruit of growers in certain outlying orchards.

St. Catharines

(*Continued from page* 179)

will be given for the best flowers raised by the pupils of every school. It may be said that the aster seed supplied by the society this year is of a very superior class, the colors of flowers chosen being violet, rose, and white.

During the first week in June a distribution of gladioli bulbs was made in the schools, and for five cents pupils were furnished with bulbs which sell for thirty cents. These bulbs are of excellent named varieties: America, Brenchleyensis, Attraction, and George B. Remson. For every bloom of these brought to the fall exhibition, pupils will receive as a prize four tulip bulbs.

Wouldn't that friend of yours with the garden or orchard like to see THE CANADIAN HORTICULTURIST? Show him your copy, or send us his name and we will send him one.

Agricultural Appropriations Increased

The appropriations for carrying on the various branches of the Department of Agriculture, sanctioned during the past session of Parliament, show a decided increase over those of last year. The following table shows the amount of money voted for the present and the past fiscal years:

	1913-14	1912-13
Civil Government	$ 406,525	$ 445,400
Experimental Farms	630,000	395,000
Dairying, Fruit and Cold Storage	433,000	368,500
Improvement of Farm Seeds	115,000	80,000
Live Stock	200,000	102,000
Health of Animals and Meat Inspection	710,000	525,000
Tobacco	30,000	20,000
Exhibitions	433,000	233,000
To administer Insect and Pest Act	30,000	25,000
Publications and Int. Institute	32,000	15,000
To administer Agr. Instruction Act	25,000	
Total	$3,444,524	$2,389,400

The decrease in the amount voted for civil government is accounted for by the transfer of the Census and Statistics and Archives branches to other Departments. To administer the Fruit Division requires about seventy thousand dollars. During the session the Fruit Marks Act was amended to place foreign fruit on the same basis as home grown in so far as inspection is concerned. Twenty-eight thousand dollars are set apart for experiments in cooling fruit before shipment, while two hundred thousand dollars is set aside to bonus cold storage warerooms. Of those receiving grants twenty are in operation, and two are being commenced.

Besides the fifty thousand dollars which will give to Brandon Fair this year the title of Dominion Exhibition, the Department is spending a good deal on an exhibit at the international exhibition at Ghent, Belgium. Preparations are also under way for making a good Canadian display at the Panama Exposition to be held at San Francisco in 1915.

In conection with the administration of the Insect and Pest Act an active campaign is in operation in the Maritime Provinces in fighting the Brown Tail moth, which has caused great havoc in the bordering states.

British Columbia Markets

There is a possibility that a larger portion than usual of the British Columbia fruit crop this year will be marketed in Australia. Speaking on this point recently, Provincial Fruit Inspector W. H. Lyne said: "Last year the fruit growers had a good crop, but they suffered from the congestion in marketing their crop. They were not represented in many of the markets, as were the United States growers. This year, special efforts have been put forward to improve the system of marketing. Wherever possible, the Provincial Government has lent its assistance in this direction, and we look not only for a successful crop, but also for success in marketing it to good advantage.

"It is expected that a large quantity of our fruit will find its way to the Australian markets. The Australian laws prohibit fruit being imported from districts infected by codling moth, or even from orchards within many miles of an infected district. British Columbia, being free from codling moth, is able to comply with the drastic laws of Australia, and we are planning to take advantage of them."

FRUITS
AND
ORNAMENTALS

Last Fall we sold a large quantity of Fruit Trees and Shrubbery, which gave the best of results. One orchard of 500 Cherries planted at Oakville in late November contains to date but one dead tree. Results like this prove that fall planting pays.

Order Now for November Delivery

THE AUBURN NURSERIES, Ltd.

Head Office: 95 King St. E., TORONTO

Nurseries: QUEENSTON, SIMCOE, OAKVILLE

Apple Boxes

Made-up or Knocked down

Any Quantity

Firstbrook Bros. Limited

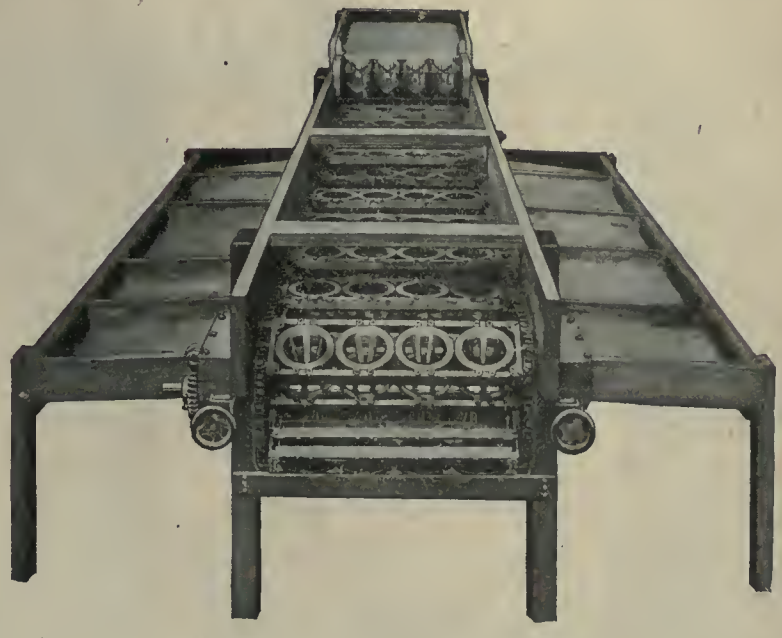
Boxes and Shooks

Toronto, Ont.

SCHELLENGER MODEL C

Apple Sorting Machine

THERE are hundreds of Schellenger Fruit Sorting Machines in use in the Western Fruit Districts. The results these machines have given is best told in our customers' own words:



J. E. RUNDLE,

Wholesale Dealer in Apples and Produce.
Car Lots Only.

Craig, Mo., Nov. 17, 1912.

Schellenger Fruit Sorting Machine Co.:

Gentlemen,—Your letter of the 14th at hand. Will say in reply A. G. Zulfer of Chicago says my apples that were packed by the Grader were worth 50 cents more a barrel than the apples that were packed without it, and I wish to say that I would not take a thousand dollars for my grader if I could not get another. I am sure a man could not say enough for your grader—it is all right, and when it suits me it will please any good packer.

Yours truly,

J. E. RUNDLE.

FAIRVIEW RANCH COMPANY

C. A. Leedy, Manager.

Wenatchee, Washington, Nov. 20, 1912.

Schellenger Fruit Sorting Machine Co.;

Gentlemen,—We have used one of your fruit grading machines this season to pack about twenty thousand boxes of apples, and we are all pleased with them. We are positive the machine does not bruise the fruit. We find by using this machine that we can use unskilled packers, thereby solving the packing question. We are also able to pack from a third to a half more with the aid of the machine. You surely have the apple grading solved. Of all the people that looked at our machine at work there wasn't a single person but what pronounced it a success.

(Signed) LEEDY BROS.,

(per C. A. Leedy.)

Huntington, Oregon, Jan. 23, 1913.

Schellenger Fruit Sorting Machine Co.;

Gentlemen,—In reply to yours of November 14th, will say that the machine shows no wear any place. It works perfectly. I used it to grade apples and pears. It does its work better than it is possible for it to be done by hand, and one person can grade more than five persons can by hand, and do it better. It is a great labor saver, and growers that do not have one are doing themselves an injustice. Everybody needs one that grows apples and pears in any quantity.

Yours truly,

(Signed) J. C. ROGERS.

Dryden, Washington, Jan. 14th, 1913.

Schellenger Fruit Sorting Machine Co.;

Gentlemen,—The grader is a success. I put three thousand boxes of apples through ours this season and we are pleased with it. It paid for itself in one kind of apples alone where we sold the five tier only, as you know we had only to run them through the grader and pack the five tiers—it was a big saver in labor. We would not try to pack without a grader.

If you are in the Wenatchee Valley this coming season I hope you will give us a call.

Yours truly,

(Signed) J. G. PETERS & SONS.

A complete list of Letters of Endorsement from our customers, together with our Catalogue, will be mailed to you upon request. The information regarding the sorting of fruit which is contained in our catalogue is of great value to every grower, and should be carefully read by all before packing season begins.

OUR MODEL C MACHINE will sort apples, peaches, pears, etc., etc., into any desired number of sizes, ranging from 1¾ inches to 4¾ inches Cheek-to-Cheek diameter. Changes in the sizes can be made instantly and accurately to the hundredth part of an inch.

Schellenger Fruit Sorting Machine Co.

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BEAUTIFUL OLD ENGLISH GARDEN

THE OLD ENGLISH GARDEN owes much of its charm to the beauty of its simple herbaceous plants.

KELWAY'S COLOUR BORDERS of Paeonies, Delphiniums, Pyrethrums, Gaillardias and the like will enable you to reproduce this picturesque effect under almost all conditions of soil and climate. Borders are planned to fill any space, and on receipt of dimensions, carefully selected plants are sent beautifully packed, labelled and numbered in order for planting.

The cost is $6.00 for every 10 square yards.

Full particulars and illustrations are given in the Kelway Manual of Horticulture mailed Free on receipt of 60c, by

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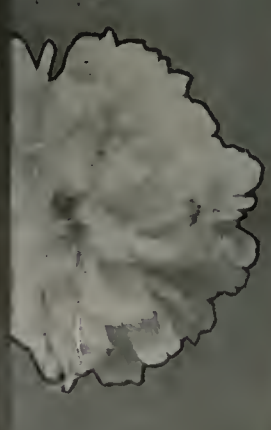

Fruit Crop Conditions

The Niagara Peninsula Fruit Growers' Association has issued the following report on fruit crop conditions:

Reports were received from about one hundred fruit growers from Hamilton to Niagara. General conditions of trees, vines and plants are good. There is only one report of strawberries winter-killed; a few tomatoes are reported killed by frost at Niagara; grapes are slightly frosted in low-lying localities, and cherries partly frozen at Welland. Leaf Curl is reported from Niagara township, and Bud Moth from Welland.

Spraying was, as a whole, done on time, and cultivation is generally sufficient, except in the case of apples, which have not received as much attention. Nearly all apples and many cherries and plums have been sprayed twice. There has been practically no injury from frost in the fruit sections.

The average set of crop is as follows:

Strawberries, (48 reports) 67%; two total failures.
Raspberries, (30 reports) 66%.
Red Currants, (33 reports) 72½%.
Gooseberries, (29 reports) 70%.
Cherries, (75 reports) 71½%.
Sweet cherries when reported separately (10 reports) showed 90%; sour only 51%.
Japanese Plums, (58 reports) 65%.
European Plums, 60 reports) 68%.
Early Peaches, (84 reports) 68%.
Late Peaches, (91 reports) 74%.
Pears, (75 reports) 79%.
Apples, (61 reports) 63%. Baldwins and Spys reported light.

Too early to estimate Tomatoes or Grapes.

It must be remembered that it is rather difficult to form an accurate estimate of the future crop at this early date, but later reports will give better indications, and may alter percentages. Attention is drawn to the fact also that 100% means a full crop from all trees and varieties, while 75% stands for a good average crop from all trees and varieties.

Later reports will be issued as the crop develops.—P. W. Hodgetts, Director Fruit Branch.

Eastern Annapolis Valley

Eunice Buchanan

This year promises to be one of enormous apple crops in spite of the May frost which injured quite a number of blossoms and tender shoots. The fruits are setting well with the exception of Ben Davis in places, and Spys are, owing to the frost, setting one in a cluster. It is generally an off year for Kings, but Gravensteins are very full.

Spraying is receiving greater attention than ever in the Berwick district, mostly commercial lime-sulphur and arsenate of lead being used. Usually the quantity is five pounds of arsenate of lead (though some put six and seven) to one hundred gallons of spray in which there is 1.01 of lime sulphur. This is applied before and after the blossoming. Some growers spray three or four times, while others are making two heavy applications only.

Growers in districts west of Berwick have

Import Your Bulbs
FOR FALL PLANTING
At Less than Wholesale Prices
Write for prices and particulars
C. MORTIMER BEZZO, Bulb Importer BERLIN, Ont.

neglected to spray early and thoroughly enough, and the consequence is that orchards in Auburn are badly damaged by the Forest Tent Caterpillar (Clisiocampa disstria). Late spraying does not have very much effect on them as they are busy preparing to spin cocoons, but it is most important to spray before the buds open if these pests are to be destroyed.

There is quite an epidemic of gasoline engines in this district and the hand pump will soon be obsolete in the spraying of orchards. Two very progressive men have purchased an Owen's compressed air outfit, which seems to give satisfaction, and will probably supplant the other power sprayers.

Thinning is also receiving much attention. Growers realize that number threes cost as much to market as number ones, and as it only costs about five cents per barrel, the increase in returns is considerable.

Owing to the poor prices received for apples last year (chiefly due to neglect in spraying) money is scarce this year, and the demand for nursery trees slackened off towards the end of the season and many orders were cancelled. Barrels are now twenty-nine cents—a cent more than last year. The young trees have done well, owing to so much rain and cool weather. In many orchards the cover crop of clover to be turned under is about three tons to the acre. Growers are seeding down alternate spaces every year so that one space is kept cultivated and the other green. Much nitrogenous fertilizer, as nitrate of soda and dried fish, is being used.

Cultivated strawberries and wild blueberries will probably be plentiful. Early sown seeds, such as corn, cucumber and beans, rotted and continued west winds have been hard on young garden stuff. Fruit trees have magnificent leaves.

National Fruit Growers' Officers

At the last Dominion Conference of fruit growers a movement was started having for its object the organization of a Canadian National Fruit Growers' Association. A draft constitution and provisional bylaws were adopted by the conference, and J. A. Ruddick, Dominion Dairy and Cold Storage Commissioner, was requested to undertake the organization. The election of officers has been carried on by letter ballot, and the list is now complete.

Membership in the Association is limited to the officers of the provincial fruit growers' associations and such other persons as may hereafter be named by the association on recommendation of the executive. The provincial officers who have been elected are: President, Robert Thompson, St. Catharines; Vice-President, S. C. Parker, Berwick, N. S.; Secretary-Treasurer, P. W. Hodgetts, Toronto; members of committee: W. C. Ricardo, Vernon, B.C., R. M. Winslow, Victoria; Manning K. Ells, Port Williams, N S.

The fruit division will now turn the matter over to the officers-elect.

In the June issue of The Canadian Horticulturist an error occurred in Mr. Peart's article, "Picking Strawberries." In the first paragraph, instead of "precooking the strawberries before sending them to market," the idea is to "precool them."

A splendid publication is the 1913 Annual Report of the Fruit Growers' Association of Nova Scotia, a copy of which has been received by The Cananian Horticulturist. This report, in addition to a full resume of the work carried on through the Association, contains valuable contributions from practical fruit growers and orchard experts dealing with orchard problems, cultural methods, fertilizing, spraying, thinning, packing. Markets and fruit exhibits are among the subjects treated.

When an advertiser spends money to tell you about his goods he likes to know what returns he is getting. When writing advertisers say, "Saw your ad. in The Canadian Horticulturist."

Attach a Greenhouse to Your Garage

TWO most delightful of hobbies. The two things a man owns that contribute more genuine pleasure and right down practical satisfaction than any other two things on his place.

How natural then it is, to join the two—your garage and your greenhouse.

It's a compact handy arrangement.

It saves you money on building.

It saves you money in running exponses — one boiler heating both with but little additional coal.

This subject—erected at Glencoe, Ill., shows how decidedly attractive such a combination can be.

The idea is so every way good, why not talk it right over with us?

Arrange the time and place to suit your convenience and one of us will be there.

Lord & Burnham Co.

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Irvington, N.Y. Des Plaines

High Quality Builds Big Telephone Business

THIS business was organized to manufacture telephone equipment for independent local and municipal systems. Right from the start our equipment made records for efficiency. It did not take long for our goods to acquire a reputation for quality and reliability. As a result our business has grown by leaps and bounds.

It is a well-known fact that we have been securing over 80 per cent. of the new telephone business in Ontario. The business, too, has been secured with less effort than business secured by competitors. The satisfaction our telephones and equipment have given under all conditions has paved the way for easy business getting.

To judge how fast our business is growing, you'll remember we stated in a previous announcement that our business last year doubled that of the year before. Well, this year the first two months' sales total more than twice the 1912 sales for the same period. More and more is it being recognized by those in the local telephone business, that we are the legitimate people to deal with. There are those in the telephone business who are interested in depreciating the success of the independent telephone movement and the development of municipal systems. On the other hand, our business lies wholly and directly with the independent telephone systems, and it is to our own best interests to look after these systems well, as on their success depends the growth of our business.

If you would like a list of the large independent telephone systems built in Ontario during the last twelve months, just drop us a line. We would be glad to send you a list of the systems, with the make of the telephones they are using. In fact, if you'll name over the large independent systems built during the last year in Western, Northern and Eastern Ontario you'll find that nine out of every ten are using our telephones and equipment.

You are absolutely safe in equipping your system with our telephones. We guarantee them as regards material and workmanship. In fact we guarantee all our equipment and materials. And in addition, we offer to send our telephones for **FREE TRIAL.** So you can test and compare them with others right on your own lines before risking a dollar.

Ask for our No. 3 Bulletin—containing latest information about building telephone lines. Also No. 4, describing our magneto telephones, is free on request.

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Sprayers

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For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

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A Felicitous Choice

Mr. E. D. Smith, of Winona, Ont., is now a Senator. In this choice the Government honors Mr. Smith, the fruit growing industry, and itself.

Senator E. D. Smith is known either personally or by reputation to every fruit-grower in Canada. He has met with equal success as a nurseryman, as a fruit grower, in buying and distributing fruit, and in fruit canning and preserving. It is probably as a nurseryman, however, that Mr. Smith has made his greatest achievemtnt. It requires a man of a good deal more than ordinary ability to manage nearly one thousand acres of high priced land under a system of intensive cultivation.

"A Last Opportunity for Our Readers."

Did you answer the questions asked on page 167 in the June issue of The Canadian Horticulturist?

Many of our readers did and will receive in return their choice of one of Gordon Thompson's Famous Life Songs The offer was good only to June 25th. In order, however, to give every reader a full opportunity to get one of these songs we now extend the offer to July 15th.

Perhaps you thought the questions too personal? Remember that we treat your reply as entirely confidently. We merely wish to compile statistics re Canadian Horticulturist subscribers to show our advertisers what a desirable class of readers we have.

Look up the June issue right now, fill in the coupon (it will only take a couple of minutes) and mail to us to-day. Don't forget to mention which one of the songs you prefer.

In addition to the large acreage devoted to fruit and nursery stock, Mr. Smith operates his own jam factory and preserving plant. He also has his own cold storage plant, telegraph office and express offices, and pays out half a million dollars a year in wages.

The Canadian Horticulturist joins in the congratulations to Senator Smith. We feel that the fruit growing industry is fortunate in having as its representative in the Senate a man of his calibre and ability.

Mr. Reginald Beale, F.L.S., author of "Practical Green Keeper," is visiting this continent. Mr. Beale's itinerary includes Toronto and Montreal. He will give consultations on the making and maintenance of golf courses and will meet the greens committees of most of the important clubs. Mr. Beale is a grass expert of James Carter & Company, of London, England, seedsmen to His Majesty, King George, who are represented in this country by Patterson, Wylde & Company, of 133 King street East, Toronto. Mr. Beale's time has already been booked up and he cannot make any new appointments but anyone having difficulty in growing grass on lawns, bowling greens or tennis courts is at liberty to write to the Toronto address for free advice.

PACKER'S "SAFETY"

FRUIT WRAPPER PAPER

Recommended by Government Inspectors

Used with Perfect Results by Largest Growers

Take No Chances with

Untried Papers

Large stock, following sizes always on hand:

10 x 10	10c. per ream	(480 sheets)
20 x 30	55c. " "	"
30 x 40	1.00 " "	"

In addition to Fruit Wrapper, following supplies necessary to the modern Fruit Export Business are carried in stock at our Hamilton warehouse. Prices supplied on application.

Wrapping Papers
Twines
Pulp Board Box Linings
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LIMITED
HAMILTON - - CANADA
Mention THE CANADIAN HORTICULTURIST

Every summer ten million families find freedom from flies through the use of Tanglefoot.

It is the most effective fly destroyer yet devised.

In thirty years nothing has proved so sure, so cleanly, so safe to use.

Kills the Germ

When a fly alights on Tanglefoot it is coated over with a varnish that **destroys the germ** as well as the fly.

Thus it puts an end to the greatest menace of the fly. Your household is **doubly** protected by Tanglefoot.

Poisons Are Dangerous

Every summer fatalities are reported from their use. In several states the sale of poison is forbidden except by registered pharmacists.

The poison does not kill the germ on the fly. Poisoned flies drop into your food, into baby's milk, are ground to dust in the carpet.

Fly-traps, too, are unsanitary, and disgusting to care for.

Countless Unborn Flies

Each early fly breeds millions if you wait.

Put a sheet of Tanglefoot where you see the first fly and prevent myriads of unborn flies this season.

Kills Fleas, Too

Tanglefoot quickly rids you of this pest. It is a boon to thousands in flea-infested sections. Don't be without it this summer.

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TANGLEFOOT

Millions know the original Tanglefoot. It contains one-third more sticky compound, hence lasts longer than the no-name kinds sold merely as fly-paper or sticky fly-paper. Get a supply to-day for this season's war on flies.

Made Only by THE O. & W. THUM CO., Grand Rapids, Mich.

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WE GET YOU BEST PRICES

OUR facilities enable us to realize top prices at all times for your fruit, vegetables or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge at **Sudbury, North Bay, Cobalt, Cochrane and Porcupine.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

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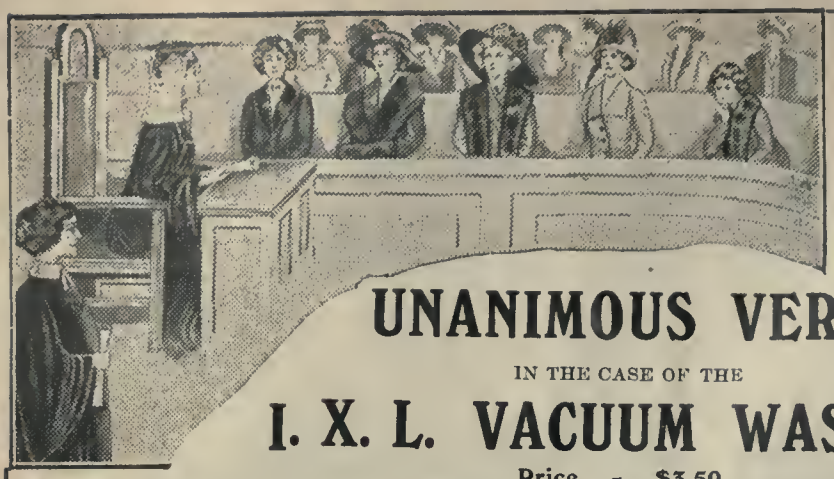

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IN THE CASE OF THE

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Price - $3.50

BEFORE THE COURT OF PUBLIC OPINION

Taber, Alberta.
The I.X.L. Vacuum Washer which formed part of the prize which I won at the Seventh International Dry-farming Congress at Lethbridge, I find to be a real labor saver. I have done four washings with it, and it is an unqualified success, cutting the time of washing one half with less labor.
Mrs. R. McAllister.

Wapella, Sask.
I enclose a coupon for an I.X.L. Vacuum Washer and $1.50. Will you send one to the name and address enclosed. I got one for myself a little while ago and I never used such a handy good little washer in my life. I have recommended it to about a dozen people in Wapella. Yours truly,
Mrs. R. R. Hutchinson.

Miami, Sask.
I have used one of your I.X.L. Vacuum Washers for some time, and find that it beats everything in the washing machine line that I have ever tried. Yours truly,
Mrs. H. F. Duncalfe.

Lingan Road, Cape Breton, N.S.
I have used the Vacuum Washer at home and find it to do all you claim and more after giving it a test. Yours truly,
George Mahan.

195 Bishop St., Montreal, P.Q.
We have received our I.X.L. Vacuum Washer and it is so perfect in every way that I am sending an order for two more for a friend and another for myself. Yours sincerely,
Mrs. A. G. Ostell.

Thousands of women who are using them have rendered an unqualified verdict in favor of the I.X.L. VACUUM WASHER, and these women have used every make of Washing Machine, and are fully qualified to judge merit.
THE COUPON below gives you an opportunity to test it in your own home and

SAVES YOU $2.00

If you do, YOU WILL concur in the verdict, as it WILL demonstrate to YOU that it will wash anything and everything, from a horse-blanket and overalls to the finest and most delicate laces without injury, as THERE IS NO FRICTION.
YOUR CLOTHES WILL WEAR THREE TIMES AS LONG

Washes a Full Tub of Clothes in Three Minutes—No Severe Exertion Required

It's so easy to operate, a child can do an ordinary family washing and have it ready for the line in one hour.

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It is the most popular Washer on the American Continent. Its popularity is the reward of merit.

USE THIS COUPON

Send for one to-day and "Blue Monday" will be robbed of its terrors for ever. You will never regret it. You will be delighted.

CANADIAN HORTICULTURIST COUPON.
Present or mail this Coupon and $1.50 to Dominion Utilities Mfg. Co., Ltd., 482½ Main Street, Winnipeg, Man., and you will receive one I.XL. VACUUM WASHER.
All charges prepaid anywhere in Canada on condition that your money is to be refunded if the Washer does not do all that is claimed. 4-2-13

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Prices: $1, $1.50 and $2 each with discounts for quantity orders.

Orders Filled Promptly

Catalogue of Bees and Queens, Hives, Comb Foundation, and full line of Bee-Keepers' Supplies, free upon request.

F. W. JONES, BEDFORD, QUE.

Reserve Space Now

in our Big Special Packing Number, out Sept. 1st.

British Columbia

That cooperation spells success is the belief of the fruit growers of Summerland who last spring organized for mutual benefit. Following the lines laid down by the new Agricultural Act, passed especially to assist cooperative organization, it was decided to place the authorized capital at one hundred thousand dollars. The fifteen thousand dollars of working capital required is secured from three hundred shares of fifty dollars each, ten dollars of each share being paid by the subscriber, the remaining forty dollars being advanced by the Government at four per cent.

Eight members were elected as provisional directors. A large proportion of the growers of the district have signed for shares and the number is steadily increasing. The organization will be known as the "Summerland Fruit Union."

The organization of a central selling agency for the Okanagan district was the subject of a series of addresses delivered by M. R. Robertson, of Vancouver, at different points in the early part of the season. Mr. Robertson spoke at Salmon Arm, Enderby, Vernon, Armstrong, Summerland, Penticton, Peachland, and Kelowna. At most of the meetings, Mr. Scott, Deputy Minister of Agriculture, was also present. The plan of organization as suggested by the Government was fully explained, as was also the extent to which the Government would assist the growers in the formation of such an agency. At all the meetings resolutions were passed favoring the movement and delegates were appointed to the organization meeting to be held at Vernon, April 30.

After deliberating three days, beginning on April 30, the delegates representing the different centres throughout the Okanagan Valley, who met at Vernon to discuss ways and means for organizing a central selling agency, prepared a set of working rules and constitution. These were then sent out to the local associations for adoption. The following is a brief outline of the proposed constitution: The agency shall be incorporated as the Okanagan United Growers, Limited. Nominal capital is ten thousand dollars in one dollar shares. Each local association shall take sufficient shares to give it a vote for each fifty cars up to three hundred cars shipped, the minimum to be one vote, maximum six. There shall be eleven directors who will appoint an executive of three members. To ensure sufficient funds for the first few years, each association shall loan a sum at four per cent. in proportion to the number of its shares. All fruits and vegetables shall be pooled. Inspectors will be appointed and growers must abide by their recommendations for packing. A charge shall be made on all fruit sold.

The plan as proposed by the delegates was set before the various local associations for their approval. All the associations adopted it and appointed representatives to act as directors in the central organizations. The Okanagan United Growers, Ltd., is now established on a business basis, the necessary capital being derived from some twenty-six shares held by the respective local associations through twenty-six representatives. The officers have been chosen as follows: President, J. E. Reekie, Kelowna; Vice-President, F. B. Cossitt, Vernon; Manager, R. Robertson.

The Okanagan United Growers is now an established organization. The Okanagan fruit men are to be congratulated on the success of their efforts.

The Canadian Horticulturist

Vol. XXXVI AUGUST, 1913 No. 8

Practical Irrigation in British Columbia

Harvey Thornber, B.S., Assistant Horticulturist, B.C. Dept. of Agriculture.

IRRIGATION, in itself, is not a difficult art. Anyone can learn to make the furrows and apply the water. The greatest difficulty seems to arise when the relation between irrigation and plant growth is not well understood. The varying requirements for different soils and different crops, one year with another, tend to confuse the beginner more than does the mere application or distribution of the water. In order to make myself clear, I will discuss a few of the most important points which a beginner should know.

The first thing to consider in starting on an irrigated tract is the preparation of the land. A few dollars extra per acre spent in preparing the land often means many dollars saved during the life of the orchard. The best preparation is none too good. Many people feel that the planting of the trees and the turning on of the water are the main operations necessary for the production of an orchard. This mistaken idea is partly due to misleading advertisements and to a lack of experience on the part of the beginner.

The land should first be cleared of all stumps, rocks, or brush and then plowed. If any large holes or hollows exist they should be filled before plowing. All "fills" should be permitted to settle before any trees are planted. This settling can best be secured by planting some annual crop on the land for the first year. A cover crop, which may be plowed under in the fall or spring, is best because it adds the much-needed humus to the soil, thereby making it more congenial for the young trees. Vegetable crops, such as potatoes or other root crops, are often used ,but are not always successful. After this crop is either removed or plowed under the levelling may be completed. The best tools for levelling with are the ordinary road graders or slip scrapers. If the land is fairly level the "planer" or "smoother" may be used very successfully. Its construction is described in Circular No. 14 of the British Columbia Department of Agriculture.

The land having been well prepared, the planting is next in importance. In case the land is nearly level, any desired system may be used as regards the irrigation. The square plan, with the fillers in the rows in the same direction that the irrigation ditches are to run, is a favorite. This makes it possible to irrigate the fillers and standards from the same ditches, which is advantageous, especially in the young orchard. However, if the land is too steep for irrigating directly down the hillsides, planting on the contour or in such a way that the water may be used on a smaller grade will often decrease the cost of irrigation later.

The head ditches may be located as soon as the planting plan is decided upon. These are placed at intervals across the field, depending upon the contour of the land and the texture of the soil. If one has a clay or loam soil the ditches may be farther apart than on a sandy or more porous soil. The average distance in a clay soil is six hundred feet, while in a sandy soil three hundred feet is sufficient. Slight variations from these are necessary for special conditions.

The construction of these ditches

Irrigation is a Feature of Many of The Best Orchards in British Columbia. The Well Cultivated Orchard of Mr. Mansfield at Kelowna is shown

(Photo by G. H. Hudson

Cover Crops are an Important Phase of Modern Orchard Practise

It is not too late in most districts to sow a cover crop of buckwheat. A buckwheat crop in the orchard of C. A. Wade, Sarnia, is shown.

varies. Some are made by turning a furrow with a plow, while others are made of iron, wood, or cement. The open wooden flumes are the most common. They permit the water to be carried over a depression and also prevent loss by percolation, which is the great fault with the open furrow. If the location of these ditches is permanent, cement or wooden pipes placed underground are without doubt the best. This permits free cultivation and care of the orchard and gives the advantage of having water under pressure. They permit the most economical use of water, and although somewhat expensive to install, are nearly permanent and often prove to be cheaper in the end. The water is taken from these underground pipes by means of upright iron pipes located at each row of trees. Sometimes cement stands are built in the field and the water supply controlled by valves placed in them.

Having located the main ditches, the rest is simple. The laterals are made with a single-shovel cultivator or a one-horse plow, the distance apart varying from three feet in sandy soils to five or six feet or even more in the heavier soils. Never get them closer to the tree than a foot and a half. It not only endangers the trunk of the tree from single-tree injury, but is unnecessary because the feeding roots are located at the tips of the main roots and not at the base of the tree.

In irrigating vegetable, grain. or hay crops, these ditches are made from three to five inches deep, but in the orchard they may profitably be made from seven to nine inches deep. These deep ditches permit the water to flow on rather solid soil, thereby preventing washing, and at the same time permitting the land to be irrigated without wetting the surface mulch. The water used in wetting the surface mulch, when shallow ditches are used, is lost by evaporation when cultivation is resumed, therefore, it is of no value to the orchard. These deep ditches are not always successful on light soils, but have been found very satisfactory on the ordinary orchard soil.

CLASSES OF CROPS

Irrigated crops are divided into two classes, cultivated and uncultivated. In general the uncultivated crops require more water than do the cultivated ones. Oats require more than corn, and alfalfa more than potatoes. At the same time differences are found in the same crop. Take, for example, the apple—one variety will be found to make a large growth, while another will only make a moderate growth with the same amount of water. The same variety will often vary under similar soil and climatic conditions; the shy bearer will make much more growth than the bearing tree. It will be noticed that all fruit trees make less growth when in bearing. Recognition of this point when irrigating will often save unnecessary pruning.

In irrigating potatoes, one often gets undesirable results. The first irrigation should not be given until needed, as potatoes do not thrive on a saturated soil. No set date for the first irrigation can be given because of climatic variations. The main points to remember are to apply the water in sufficient quantity to moisten the soil well and then turn it off and cultivate to conserve what you have applied. This permits the ground to warm up and growth starts again.

WHEN TO IRRIGATE

Small applications of water at short intervals tend to cool the ground and prevent strong growth. On the other hand, avoid letting the ground get real dry, thereby checking the growth. When this happens the potatoes make a second growth when more water is applied and the result is poorly shaped tubers. It is seldom necessary to apply water after they are in full bloom.

The same general principles hold true with all crops, whether grain, vegetable. small fruit, or orchard. The best results can never be obtained by applying water at stated intervals of five, ten, or twenty days . The best plan is to apply when the crop needs it, use enough to thoroughly moisten the soil beyond the roots of the crop and then conserve it by careful cultivation. If one is limited to one day a week or two days in every ten, the best plan is to divide the land into several divisions, irrigating one well each time rather than a larger area poorly.

It will be seen from the foregoing that careful thought and consideration must be used in order to secure the maximum returns from irrigation. The amount of water required varies according to the soil, crop. manner of application, and the skill of the irrigator. The importance of water is continually increasing, partly because of the improved methods of application and partly because of the increasing knowledge of the irrigator.

The learning of the "why" is very important, for this teaches "how" and "when."

Buckwheat as a Cover Crop

B. Blanchard, Hants Co., N. S.

There are a number of crops that are suitable for cover crops, such as: buckwheat, rape, vetch, peas and clover. While buckwheat does not take free nitrogen from the air as do clover and other legumes, and thus add nitrogen to the soil, yet it has several good points in its favor.

In the first place, with buckwheat it is comparatively easy to get a catch, even when sown quite late in the season. We have known occasions when a seeding of vetch did not take and buckwheat was sown afterwards with good results.

Then, again, buckwheat will produce a good crop on soil on which most other crops would starve. In the renovation

of worn out and neglected orchards, buckwheat will usually give the best results for the first year or two for this reason. The disadvantage of buckwheat as a cover crop is that it does not live over winter, and when the soil is badly in need of humus requires to be plowed under in the early fall. If the orchard is on hilly ground there is liable to be severe loss from wasting of the soil when fall plowed. For adding humus to badly worn out soils, however, there is no crop that will do so as quickly as will buckwheat.

An Ontario Fruit Grower's Success

NESTLING at its base and extending far up on the side of the mountain that overlooks the little town of Milton, in Halton county, is one of the many fine fruit farms in Ontario. The story of how its owner, Mr. W. J. Hartley, transformed this farm from as unproductive a piece of land as could be found in the community, to one of the most profitable fruit farms in the province, reads like fiction. But it is better than fiction; it is true.

When Mr. Hartley and his bride of a day moved to Sunnyside Farm twenty-eight years ago, the prospect before the young couple was not an encouraging one. The farm was badly run down. Mr. Hartley had no money to improve it; in fact, he was heavily in debt. The part of the farm that he called his own was really owned by his creditors. The rest of it he rented. The soil was a heavy clay. No one thought of it as adapted to fruit. Mr. Hartley himself didn't. Fruit farming was then confined to a few special fruit sections, such as the Niagara Peninsula. Accordingly a start was made in general farming.

For five years Mr. Hartley grew grain, fed steers, burned lime and cut stone, while his wife fed chickens and made butter. They did not get ahead very well, however. Such farming yields only nominal returns under the best of conditions, and they had a run-out farm and the interest on heavy debts with which to contend. At one time they were so nearly going under that had not a sympathetic neighbor loaned them one thousand dollars on personal credit, they would assuredly have given up in despair.

Like many another man, Mr. Hartley traces the idea that finally brought him success to the commonsense of his wife. Mrs. Hartley believed that so far as possible young people in debt should aim to produce on the farm all of the food consumed in the home. And therein the fruit farming idea had its birth. One of the first purchases made that first spring consisted of three red currant bushes, three black currant bushes, three gooseberry bushes, a crab apple tree, several apple trees, and one tree each of pear, peach, and plum. A kindly neighbor gave them the privilege of digging a supply of strawberry plants from his garden. Mrs. Hartley agreed to take on herself all the labor of caring for their fruit and vegetable garden if her husband would plow and make ready the land.

Mrs. Hartley's fruit garden thrived exceedingly. The strawberries did particularly well. Mr. Hartley was quick to see his opportunity. Half an acre was set to strawberries. Fortunately this first venture in fruit growing on a commercial scale was a success. The first crop was good, the returns large. It looked like "easy money" to Mr. Hartley, and gradually his interests were transferred from the farm proper to his fruit.

DECIDES FOR FRUIT GROWING

"I had always thought I would like fruit growing," remarked Mr. Hartley, "but I did not know that it could be made a success with our climate and soil. I soon found, however, that we could get berries just as quickly as they get them down on the lake front. In fact, this year we had strawberries and raspberries a week earlier than in the far-famed Niagara district."

A good-sized patch of raspberries was soon added to the strawberry plantation and they were soon yielding returns that justified an increase in their acreage. In the meantime a small apple orchard had been set, and was growing so well that more extensive plantings were made each succeeding spring. Remember, the Hartleys were still in debt, still having a struggle to make both ends meet; but their struggle was not now a hopeless one. They could see the way out.

A WORTH WHILE IDEA

Probably it was about this time that Mr. Hartley began to consider irrigation. In good years he had good crops, but so had all other fruit growers. If, he thought, I could only get good crops in a short year my returns would be far greater. The Milton Mountain that towers over his farm is noted for its numerous inexhaustible springs. Mr. Hartley made an agreement with one of his neighbors whereby he was permitted to dam back some of these springs and make a reservoir. As the reservoir is on higher land than the farm and only a short distance from it, this irrigation scheme did not represent any great outlay, and has proved decidedly profitable from the first.

For the last ten years the Hartleys have had clear sailing. Sunnyside Farm has now extended its bounds until it contains two hundred and thirty acres. Thirty acres of this is in bush; one hundred acres is devoted to general farming, the remaining hundred, which represents most of the value and from which Mr. Hartley derives practically his income, is in fruit.

METHODS FOLLOWED

In his orchard setting, Mr. Hartley follows the "filler" system. In practically all of his orchards apple trees of standard varieties are set thirty-two feet apart each way. Alternating with the apples and in the centre of each square are plum, peach, cherry or pear trees. Very few of Mr. Hartley's apple trees are yet bearing. In a good part of the orchard, however, the "fillers" are returning profitable crops.

When Mr. Hartley first started plant-

Thinning Duchess Apples in the Orchard of Mr. Nicholl, Welcome, Ont.

This orchard was one of the demonstration orchards in Durham county, Ont. Experiments in thinning showed a difference in profit between two trees in favor of thinning of four dollars and twenty cents.

The Fruit Growers' Senator

In Hon. E. D. Smith, of Winona, the well-known fruit grower and nurseryman, the fruit growing industry has a worthy representative.

ing to peaches, his friends were doubtful of his success. They had always considered the peach too tender a fruit to grow properly in that locality. Mr. Hartley reasoned, however, that if he could grow the small-fruits to maturity as quickly as they could be grown in the Niagara district, that peaches should do equally well. His peach orchard now consists of ten acres, interplanted with apples and all in bearing. Mr. Hartley's first three crops were bumper ones, the fruit comparing favorably in quality with the best Niagara product. Last year his peaches were a failure, but this year again the trees are well loaded, and a good crop is promised.

Cherries, Mr. Hartley considers one of his best money-making crops. On the day of our visit thirty-five pickers under the direction of Mr. Hartley's daughters were at work in the cherry orchard, and the shipment for the day numbered well over two hundred eleven-quart baskets. Trees set eight years ago, this year averaged almost six baskets of fruit a tree. At this rate of bearing and allowing twenty cents a basket from present prices for picking, Mr. Hartley's returns from his cherries will run between three hundred and four hundred dollars an acre.

Although Mr. Hartley is devoting more and more of his attention to tree fruits, he still derives a good portion of his revenue from the smaller fruits that gave him his start. Of these, raspberries this year proved the most profitable. As a general rule the crop has been short in most sections, and Mr. Hartley has averaged over fifteen cents a box wholesale, selling some as high as twenty cents and twenty-two cents a box. The cop all through his ten-acre plantation was good. Strawberries occupy fifty acres. They were a small crop this year, the bloom being injured by spring frosts and consequent growth interfered with by dry weather. But even with these unfavorable conditions to compete with, returns per acre had been greater from the strawberries than Mr. Hartley derives from the best of his land devoted to general farming.

Mr. Hartley gave us another glimpse into the profits that he is deriving from fruit as we drove through a small gooseberry and currant plantation of one and three-quarter acres. "Last year," said he, "I sold well over one thousand dollars' worth of fruit from that small plantation to the canning factories. This year the canning factories are filled up and I have had to look for a market elsewhere, but I believe the returns will be almost as great as last year." In other words, Mr. Hartley derives a greater income from this one and three-quarter acres than he derived from the whole farm in the days of his adversity.

"How do you market your fruit?" asked The Horticulturist representative.

"In wholesale quantities only," answered Mr. Hartley. "We ship some fruit to Galt, a lot to Guelph, but the most of it goes to commission merchants in Toronto. We aim always to give satisfaction and we find that when we treat dealers right that there is always a ready market awaiting our products. So far as over-production is concerned, I find that people are eating more fruit than ever before, and I expect to see consumption increase even faster than production. So far as getting a market is concerned I do not worry at all."

HARVESTING THE CROPS

"The picking of the fruit on such a plantation must represent some difficulties," we ventured.

"We have had as high as fifty pickers here at one time," remarked Mr. Hartley. "This year we will have thirty-five pickers steadily at work for two and one-half months. They are mostly country girls, with a sprinkling from the city. I have no preference. City girls are as quick as country girls once they get their hand in. We treat them well, board them in our own house, and usually have them back to us year after year, only filling the gap when some good fellow comes along and marries one of them."

And what of financial results? Twenty-eight years ago, in the words of one of their neighbors, "The Hartleys didn't entertain company, because they couldn't afford the extra tableware necessary to feed them off of." To-day, after meeting the great expense that is involved in running such a large fruit plantation, Mr. Hartley has an annual net income that runs into thousands of dollars, and which would be sufficient to buy and equip an ordinary farm. Mr. Hartley, however, is not putting his surplus income in the bank, in mining stocks, or in western land. He is putting it back into his farm. He will soon have an estate that, did he sell out, would enable him and his children to live out their lives in ease and affluence.—F.E.E.

Budding Peaches and Plums

Prof. J. W. Crow, O.A.C., Guelph, Ont.

In budding the peach and plum, is grafting wax applied over the raffia binding? Which is the best month for budding in Elgin county, Ontario? About what percentage of loss do the nurseries incur in budding?—C.T.

Grafting wax is not applied over the raffia binding. July or August would be the most satisfactory period for budding in Elgin county. Apples, pears, plums, and cherries would be budded in July or early August, peaches in late August.

The percentage of loss in budding in nurseries varies under normal conditions between ten and forty per cent. approximately. It is very seldom that a nurseryman gets seventy-five per cent. of a stand in apples, and frequently they get not over fifty per cent.

Girdling to induce Fruitfulness

In the May issue of The Canadian Horticulturist there appeared an article by Dr. C. D. Jarvis on winter and summer pruning, in which it was stated that the girdling of fruit trees was practised to induce fruitfulness. The writer does not make plain whether the bark is cut with a knife or a band is tied tightly round the trunk, to be removed afterwards. One would expect that if much of the bark were removed the tree would die.—S.P.R., Montreal, Que.

In my article on pruning fruit trees, I did not explain fully the method of ringing or girdling trees to induce fruitfulness. This practice is common in the middle west, especially in the Ozark apple region. The practice consists in taking about a quarter inch ring of bark from the main stem of three or four year old apple trees. The work is usually done during the month of June when circulation is active.

The wound thus made interferes to some extent with the down flow of sap and tends to check the growth of the tree during the season. Any operation that tends to check the growth is likely to induce fruitfulness. If this operation should be done later in the summer it would probably kill the tree, but if done at the proper time the wound readily heals over. The practice is not generally recommended. In the east it is believed that better results will follow summer pruning.—C. D. Jarvis.

The Amateur's Home Greenhouse

F.E. Buck, B.S.A., Experimental Farm, Ottawa

TO many the small greenhouse attached to a private home appeals as a luxury which requires a greater share of their time and money than they care to give. To others, and especially to those who like to indulge in one of the finest hobbies in the world, the small, modest, "home greenhouse" is not looked upon in the light either of a luxury or a burden, far from it. To the latter class of people such an addition to the home is an investment, an investment bringing in a constant revenue of enjoyment and satisfaction.

The Simple Greenhouse in which Mr. R. B. Whyte, of Ottawa, Spends Many Happy Hours
See accompaning article.

The "amateur's greenhouse" of these notes is quite a modest little structure and a stranger perhaps might be pardoned if he questioned the owner as to the returns on the sums spent in its construction and upkeep. Those who know Mr. R. B. Whyte, of Ottawa, however, as a shrewd and successful business man, as well as a noted amateur horticulturist, know full well that he would not speak in such unmeasured terms of satisfaction in regard to the pleasures as well as the rewards derivable from such structures if he did not base his remarks on the experience of many years.

SIZE AND COST

Mr. Whyte's greenhouse is built on the east side of the house, and under it at the time of construction a cellar was also built in which the Dutch bulbs and similar flowers might be stored as soon as they are potted in the autumn. The greenhouse itself is ten feet wide, twenty-seven feet long and averages eight feet in height. The initial cost of the house, together with the cellar, was some six hundred dollars. Mr. Whyte thinks that perhaps the actual cost of the house, without the cellar, was only about half that sum. The glass used is twenty-four by twenty-four inches for the sides and sixteen by twenty-four for the roof. Part of the floor is of cement and part is floored with wood in order that it might be used as a sewing room. The greenhouse is heated by pipes connected to the house furnace as this plan entails less work. A door connects the greenhouse to the living room and since this is often left open the former may be considered as really one of the rooms of the house.

To obtain proper soil for his plants, Mr. Whyte adopts a very simple plan. He orders a load of greenhouse soil from a local florist. This costs him only a small sum, lasts him two years and saves him a great deal of time and trouble.

Proper understanding of the watering problem means success with plants where some people have failure. Mr. Whyte has found from experience that in his greenhouse he must water about every other day in the summer and twice a week in the winter. Plants should be watered when they need water and generally at some regular period. No other correct rule for watering can be given. Just when they need water will depend upon the conditions under which they are growing.

Closely allied to the problem of "watering" is that of "ventilation." In a small greenhouse a good ventilation system and a proper attention to the atmospheric conditions are fully as necessary as in a large greenhouse. During the very hot days of summer it is always necessary to provide some shade for those plants which are left in the greenhouse. Mr. Whyte has tried several systems but states that he finds whitewashing the glass, a practice followed by commercial greenhouse men, is the best and cheapest method of providing shade.

Plants grown under glass are just as liable to be troubled with insect pests and fungous diseases as are those grown outside. Perhaps the worst enemy of indoor grown plants is that known as aphids or "plant lice." As a remedy against these Mr. Whyte has found the following simple procedure perfectly effectual. To one pint of water placed in a flat dish he adds two teaspoonfuls of Nicotine (tobacco extract) and then places in the dish a hot smoothing iron. The heat from the iron evaporates the mix-

Corner of a Conservatory that is also a Living Room.—Residence of Mr. T. A. Trihelm, Montreal

Exterior View of Mr. T. A. Trenholm's Conservatory, Montreal, Que.

Note that there is a continuous row of ventilating shaft at the ridge on both sides, so that whichever way the wind may be blowing the opposite sash can be opened so as to prevent a draught on the plants.

ture, the fumes of which destroy the lice. The doors and ventilators must, of course, be tightly closed during this fumigation process.

In this small house of his Mr. Whyte has tried many kinds of plants. His chief show plants, however, are the bulbs and never from early winter till late spring is his house without a beautiful display of these gorgeous and most satisfactory flowers. Freesias, narcissi, tulips, hyacinths, form the staple crops, while crocuses, grown in flat pans, also make very effective shows. Several hundred pots of these plants are grown each winter. In addition to the bulbs, he finds geraniums, begonias and cacti are among the best plants to grow. He is quite partial to the cacti, chiefly because all of them are quaint and practically proof against all injury from no matter what cause, and also because the two classes which he chiefly grows, namely the Epiphyllum or Crab Cacti, and the Phyllocactus, are showy flowering plants and their blossoms last during a whole season. Cacti may be neglected for days and no injury will result. In this regard no other flower can compete with them.

Ferns are such useful plants that everyone should possess at least a few varieties. Mr. Whyte finds the sword ferns, or the Nephrolepis type, do best with him, the maidenhairs or Adiantum are apt to dry up too quickly. Palms and shrubs although tried he has not found so satisfactory on account of the large amount of space they require.

Vegetables, such as lettuce and radish, are not grown to any extent for the same reason that shrubs are not grown. That is, Mr. Whyte loves to have a big display of flowers to which he is partial, and does not care to crowd them out to make room for a greater variety of plants, and besides this, vegetables require a somewhat lower temperature than suits most other plants.

ADVANTAGES OF A SMALL GREENHOUSE

A large amount of interest and pleasurable recreation it attached to the care of a small "home greenhouse.' The real labor on the other hand is very slight. The advantages of growing plants in a small greenhouse as compared to growing them in the rooms of the house, may be summed up as follows:

The light conditions are better and more easily controlled.

Temperature conditions may be made nearly perfect. A temperature of sixty-five to seventy-five degrees by day and fifty-five to sixty-five degrees at night are the optimum temperatures.

The humidity of the atmosphere may be kept more regular; the dry atmosphere of rooms often causes the death of plants. In a greenhouse the floor can be sprinkled.

Such work as potting is more easily and pleasantly performed than in a room.

Proper ventilation can be given with less likelihood of direct draughts.

All types of flowering plants may be grown, as well as foliage plants.

Insects can be dealt with more easily.

No injury results from leaking gas pipes.

Cuttings may be grown in a propagating bench.

What lover of flowers would not have a greenhouse?

For the important task of thorough weeding I find the trowel a great help, especially where I do not care to trust the hoe.—H. M. Speechly, Pilot Mound, Man.

Preparing Plants for the Winter Conservatory

Wm. Hunt, O.A.C. Guelph, Ont.

The all-enduring, useful geraniums are often imposed upon by flower lovers and expected to continue growing and flowering the whole year round without cessation. Most plants require a season of rest and special preparation to do their best in the winter season. The geranium is no exception.

If there should happen to be a few geraniums left over after finishing up the bedding out and window boxes, they will come in splendidly for winter flowering if properly treated. They should be potted up at once into six or seven inch pots, using plenty of drainage at the bottom of the pots. Give them a good, rich, loamy soil, and when potted plunge the pots (that is, sink the pots up to the top) in the open ground in the garden. It is well to put about an inch of coal ashes or a piece of slate or flat stone underneath when doing so to keep earthworms from getting into the pots. Keep them well watered and all bloom buds and blossoms picked off until September.

About the first or second week in September the pots may be lifted from the ground and taken into the greenhouse. If the plants are given a little liquid fertilizer every week or ten days from this time on, they will flower well all the winter. You may have some old plants of geraniums in pots that have grown tall and unsightly. If so, they may be cut well back to where the stems are getting slightly woody. Leave them in the pots, giving them enough water to keep the soil moist. In about three or four weeks signs of young growth should be seen on them. They may then be taken out of the pots, all the soil shaken from the roots, the roots cut back nearly one-half, and the plants potted into a rather sandy soil in a one or two sized smaller pot. This is called "potting back." They should not be given too much water at this time.

When the new growth has five or six leaves developed, they can be potted carefully without disturbing the roots into the original sized pot or one size larger. Use nearly an inch of drainage and good, rich loamy soil when repotting them. Old plants treated in this way, in July or August, will give good flowering results during winter, much better oftentimes than young plants will.

PELARGONIUMS

The fancy type of pelargoniums or "Lady Washington" geraniums, as they are sometimes called, should be treated just in the same way as the old geraniums just mentioned. About the end of August is the best time to cut them back. They should be cut back so that only three or four inches in length of the base of the shoots or growth made last year is left . The future treatment is the same

as that for the common geranium plants mentioned. These plants can often be kept out of doors until well into October, if given the protection of a sash and frame, or brought indoors on cold nights.

CALLA OR ARUM LILLIES

These lilies should be repotted, if they require it, early in August. They like a little humus or leaf mould in the soil. One part sand, one part leaf mould or black soil from the bush to six or seven parts of good, rich, loamy potting soil will suit callas very well. Use drainage in repotting them. If the growth on these plants is well started at this time of the year, it is better to top dress the plants, as it is termed. This is done by removing about an inch of the top soil without removing the plant from the pot, and putting in the place of the soil removed, some good rich potting soil composed of about one-half well rotted barnyard manure and half potting soil. This treatment, with an application of liquid manure once or twice during the winter, will often give better flowering results than repotting them.

Toward the end of August is a good time for repotting this class of plants if they were not potted in the spring. Use soil similar to that recommended for callas and pack it well around the roots. These plants should be standing out of doors during the summer months where they are shaded from the hot sun. They should be watered and sprayed daily in hot weather. They are best stood on a layer of coal ashes to keep out earth worms. These last-named are sure to collect where the soil is kept moist, and often cause considerable trouble by choking the drainage in winter. A sprinkle of lime under the pots will serve in place of the ashes if more convenient.

CINERARIA AND CALCEOLARIA

Seedling plants of these from seed sown in July should be ready for transplanting. Transplant them when four or five small leaves have developed, into shallow, well-drained flats, into a good-loamy compost to which a good sprinkling of sand and leaf mould has been added. A cold frame with a cotton shading over, raised at both ends to admit plenty of air, is a good place for them. The shade of a tree, if not too dense, is also suitable. A piece of slightly shaded glass placed over them and tilted to throw off the rain during storms is advisable. Green fly and thrip often bother these plants. A good plan to prevent their appearance is to place some tobacco stems or tobacco dust, sweepings from a cigar factory will do, around and under the flats they are in. This will save a lot of trouble oftentimes until later on, when the plants can be more easily fumigated than when in the frames out of doors.

Seed of pansies should be sown early in flats for planting out in cold frames in September to winter over. These will make plants for early flowering in spring.

The Importance of Right Greenhouse Construction

L. W. C. Tuthill

A RIGHTLY constructed greenhouse costs more to build, but less to keep built.

It means better plants—more blooms—less care and lower running costs.

It means a perpetual satisfaction instead of recurrent disappointments.

There are several distinct types of acknowledged standard constructions, each with its fast adherents. The underlying principle of all, however, is practically the same—that of making as light a house as possible, and yet be as strong as possible.

When it gets right down to the last analysis, results in any case are what count. It is, however, an undeniable fact that every once in a while, there is a wizard sort of a plant lover who is able to grow surprisingly fine plants under most adverse conditions. Just as there are some women who can break off a slip from a plant and apparently carelessly put it in the ground, and it thrives.

Such persons, to the casual observer, almost defy the laws of cause and effect, but in reality their extreme fondness for growing things supplies them with a kind of second sense to which the plant responds almost humanly. Give these plant loving folks a heavily constructed greenhouse, with poor ventilation and imperfect heat, and in spite of the handicap they get surprising results.

Taking your observation from what they accomplish, you argue: if they can do it, so can I. What is the use of spending additional money for a house built by the greenhouse experts when one of our carpenters here in town can build me one that will do? The answer to that is: Are you sure you are one of the wizard folks? Even if you are, wouldn't you prefer to get the same results with less care and less actual running costs? Or wouldn't you rather have a neat attractive glass enclosed garden that looked its part, than a carpenter-built affair, having the appearance of a big box full of windows?

Looking at it still another way—what does your carpenter know about plant requirements? Does he know whether orchids should be grown in a north light, or the best way to locate a house in relation to the points of the compass to grow the best roses? What concern does he give, that a wooden erected house to be strong enough, must be so heavy as to seriously retard plant growth because of the shade it casts? What does he know about the correct slant of the roof to obtain greatest deflection of the sun's rays into the house during the shortest days in winter when your plants so seriously need every ray of light and sunshine procurable?

Does your local heating man know about the temperatures necessary for different plants or whether hot water or steam is best adapted to your particular

A Small Greenhouse Built to Connect With The Cellar Where The Boiler is Located

This illustration shows how attractive a little curved eave house of this kind can be. The screen on the roof near the residence is to protect the glass from the ice and snow that fall from the eave of the house.

A Charming Little Bay Window Conservatory

Although the side architectural details are somewhat heavy, the roof is exceedingly light, allowing an abundance of sunlight to reach the plants.

plant purposes? Is it reasonable to expect that a man whose training has all been along the lines of vertical heating piping, (where air locks and sluggish circulation are by the very nature of the case not a problem) to know the many kinks in the horizontal piping where rapid circulation is so vital and air locks so exasperating? How logical it is to put these things up to men who you know, know.

So much for a bird's eye view of the situation. Now, let's get down to facts instead of generalities.

CYPRESS BEST WOOD

Cypress, because of its great endurance under conditions of alternate climes and moisture, such as exist in greenhouses, is acknowledged by all builders to be the best wood for the purpose. To secure as light a frame as possible and further increase the endurance, steel whenever possible has been substituted for wood.

The construction now most generally in use, both for private greenhouses and the big commercial affairs covering acres, is the sectional iron frame construction. No other meets so successfully as wide a range of requirements. In this construction for private uses, the walls are topped or capped by sills of cast iron. To these sills are bolted the steel side posts which curving at the eaves continue to the roof, forming the rafters.

Extending horizontally between these rafters, at stated intervals, are connecting tiers of angle iron, which the builders call purlines. On these purlines, and screwed to them are placed the cypress roof bars upon which the glass rests on a bed of putty, and is held firmly in place by glazing brads driven into the bars. The ends of the glass are lapped over each other about a quarter of an inch, so the joints will keep the weather out and the heat in.

The roof bars have little grooves or gutters on each side into which the condensation gathers from the glass and is carried off, instead of dripping on the plants or down one's neck. One of which may be harmful—the other surely most vexatious. Such a construction is simplicity itself and because of its obvious practicalness, has long been the standard construction in the States and is fast finding favor in Canada.

STEEL AND WOOD COMBINATION

Another construction which has been used extensively, especially in the Montreal section, for the last ten years, has a complete steel frame of steel encased cypress roof bars. This combination of wood and steel makes so strong a framing member that the usual flat steel rafters can be eliminated. The steel portion of the bars is galvanized and then aluminum coated, making them rust-proof and overcoming the necessity of frequent painting. When first introduced the main distinguishing feature of this construction was its curved eaves. But it is now being used with success on some other constructions.

The striking advantages of the curved eave are the entire freedom from any shade at the eave line, making the side benches in the house just as productive as the centre one. Another point in its favor is the roof and side being free from ridge to sill, the snow slides off the roof without assistance. There being nothing for the icicles to adhere to at the eave, it is always clear and free from ice. These advantages are of greatest importance in a country like Canada, where snows are heavy and winters long.

PARTS FITTED BEFORE SHIPPED

The greenhouse builders have reduced their manufacturing to such a science that all the materials are cut to fit at their factories before being shipped. With the material on your grounds, it's truly surprising the rapidity with which they can be assembled and your house turned over to you ready to be planted. The fact that such houses cost a bit more than the usual wooden ones is many times compensated for in their freedom from repairs, and increased returns. In fact, such houses built such a way, ought to last a life time. It is a significant fact that such greenhouses built thirty years ago are still as sound as ever.

So much for the house itself, now a word about the heating. Most gardeners agree that hot water is preferable because of its uniformity and less intensity. It costs more to install than steam but somewhat less to operate. When it comes to your boiler, it is better to have a regular greenhouse boiler that is made especially for the purpose, than a residence boiler, which not being designed for greenhouse use, requires more care and invariably burns more coal.

Although good results are often obtained by connecting the conservatory or greenhouse heating pipes with the residence boiler, the chances are decidedly against it, because the time most heat is required in a greenhouse is at night, just the time when the fire in the residence boiler is generally allowed to run low. In any event, a separate boiler is an economy.

THE BENCHES

When it comes to the benches to hold the soil, you certainly would not think of building a house of endurance like we have been talking about and then put in benches that in a few years would decay and have to be replaced. Quite the best all-round bench is undoubtedly one having a galvanized steel frame, cypress sides and tile bottoms. The tile besides being long lived, hold the moisture in a way that is very agreeable to the plant roots.

The cypress sides will last a good many years, and when they do show decay can easily be replaced. If you want an indestructible bench in all points then the one having cast iron sides and bottoms and galvanized pipe legs, is the one to buy.

After all, buying a greenhouse is quite like buying an automobile. You would not think of going to your blacksmith's for one. Neither do you expect a low-powered runabout to perform like a six cylinder car. You generally get what you pay for.

The point of resistence with so many people is, they don't want to pay, what they surely have to pay, to get the really worth while things.

An Interior View in The Beautiful Conservatory of Lord Strathcona, of Montreal

This magnificent conservatory serves as a connecting passage between Lord Strathcona's two houses in Montreal. The illustration tells its own story of plant surrounded joyousness and comfort.

What the Gardener can do in August

Henry Gibson, Staatsburg.

AUGUST, with its hot and lazy days, invariably brings to the amateur gardener the temptation to let

In the Garden of Mrs. H. H. Champ, Hamilton

The rose beds are at the right. The edging is Centauria.

things slide. The first and most appreciated of the flowers are over, and fresh, green vegetables are an old story. In some places the weeds are getting the upper hand, but the crops are all grown, so "what's the use?"

Well, there's a whole lot of use. In the first place more than half of the garden's good things and still more of the flower garden's beauty is yet ahead of us. Moreover, now is a good time to plan carefully for next year.

Just take a look around your grounds and see if there is not a spot that could be improved by the addition of an evergreen tree or two or a few clumps of shrubbery. Now is the time to plant these if the ground is not too dry. There are many varieties of spruces, pines, hemlocks, and shrubs that can be used for beautifying the home grounds, and that are available at prices within the reach of any one. Get a few catalogues—they are full of fine illustrations and good suggestions—and look into the tree business. You will never regret the time and money spent, for nothing else will give your home as permanent or cumulative an improvement as will a judicious planting of trees.

In the flower garden there is much that will need attention. The rainfall has not been over-abundant, and even if you have kept the hoe busy in order to conserve all possible moisture, your flower border would be greatly benefited by a thorough watering. Get busy with the sprinklers or the hose, and don't let up until you are sure that the ground is thoroughly saturated. The "little and often" system of watering is a delusion and a snare and should not be tolerated. A thorough watering will last for some time and thus allows one more opportunity to attend to other duties.

PLAN FOR HARMONY

Then again there may be some inharmonious combinations that can be remedied. Attend to these while the new ideas that you have picked up elsewhere are still in your memory. Get them down on paper. Make a complete and harmonious plan. To follow this plan, you may have to move some of the occupants of the border, but the shift will do them good. Many of the clumps can each be separated into three or four. This will not only give you more flowers next spring, but better ones, for nothing is more conducive to poor quality than overcrowding.

New varieties of perennials for next year are to be thought of too. You can easily grow your own, especially if you have a cold frame. By so doing you can have a few hundreds of them just as well as a few dozen, which isn't the case if you purchase them from the florist in the spring.

PANSIES EASILY GROWN

Among the many plants that can be raised in this way, few give a greater display of bloom and beauty than do the pansies. They are easily wintered with slight protection. The best plan is to start them in a cold frame. The seed should be sown before August 15th—the sooner the better. Make the soil as fine and mellow as you can, and if dry, give it a good soaking the day before

A View in the Garden of Mr. D. C. Campbell, Barrie, Ont. A Description of this Garden was Published in the July Issue of The Canadian Horticulturist

sowing. Sow the seed thinly and press evenly into the fresh soil. Cover with clean sand to the depth of one-quarter inch or less. Water thoroughly, and cover up the frame.

For five or six days it must be kept dark. As a prevention against the "damping off" fungus, dust powdered sulphur on the sand at the rate of one ounce to a three by six foot sash. No more water will be needed until the plants are above ground; be sure to take off the dark covering as soon as they are up. As a means of protection against heavy rains and too hot sun, cover the frames with two thicknesses of black mosquito netting. The plants can be watered through this netting, and in bright hot weather should be given a shower every afternoon.

TRANSPLANTING

In about six weeks the plants will be ready for transplanting, which should be done as soon as two complete leaves have been developed . Set in rich, mellow soil, six or eight inches apart each way. Keep clean, and before severe freezing sets in cover with a few leaves and pine boughs or, if kept in the frames, with cotton cloth, the object not being to keep the plants from freezing, but to prevent alternate thawing and freezing.

There are two beautiful and easily grown flowers that should be planted now if you would add their beauty to your collection next spring. These are the Madonna Lily and Spanish Iris. The latter should not be confused with either the popular German and Japanese Irises, as it is quite distinct. It may be rather early to procure these yet, but as soon as they are to be obtained they should be planted, for it is important that they start growth this fall, in which respect they differ from most fall planted bulbs.

IN THE VEGETABLE GARDEN

In the fruit and vegetable garden, too, there are several things that could be attended to even in the dull and dusty month. There may be a few weeds, which have escaped the numerous hoeings and weedings, that still remain unpulled. Don't leave them for a minute. as they are not only robing the vegetables of valuable nourishment, but they are producing thousands of seeds which will give you more trouble by and by.

Purslane, that watery-stemed pest of midsummer, must be cleaned out as soon as it appears, for it will develop seeds long before you are aware of it. One plant in rich soil will grow as big as a bushel basket, and will ripen seeds when only a few inches high. It won't die; it must be pulled out and carried from the garden before you can be free from it.

Now is the time to commence earthing up the early celery in order to blanch it. Before starting this work, see that the plants have an abundant supply of moisture at the roots. Celery is naturally a water-loving plant. An occasional dose of clear soot water will be of benefit to it.

To make this, get a fair-sized barrel, fill it with water, and place in it some old soot (not fresh) in a bag. Tie a weight to the bag to make it sink. Let it soak until the water has cleared and then use the clear water for the celery. Before earthing, tie the tops of the celery with raffia to prevent the soil from getting into the crowns of the plants, as this would cause them to decay.

PREPARING THE STRAWBERRY BED

In the fruit garden the strawberry patch may be made ready for next year. Get a few dozens of good, strong plants from your nurseryman, set them out in rich soil, and keep all runners pinched off. With mulching and proper care you will have some of the finest berries next summer that you ever saw.

Grapes, too, should be looked after at this time. If they are not developing evenly, it is because too many bunches have been left on the vines. If this is the case they should be thinned. If only a few bunches are grown and proper spraying has been neglected, results may be made more certain by "bagging" the bunches with manilla bags.

Then about that cold frame that you have been going to build for so long. Get busy at it now or get some one to build it for you. Just think of the nice, fresh, green vegetables that you could be enjoying away along into the fall, when the cold nights of late September and the frosts of October have ended the outdoor supply. Think. too, of the advantage of getting four or five weeks ahead next spring by having everything in readiness for the preparation of a hot bed.

An Inexpensive Greenhouse

Prof. E. M. Streight, B.S.A.

THE modern greenhouse, artificially heated, is an extremely valuable adjunct to a market garden. The profits arising from gardening under glass are large when properly managed; but the initial cost of installing such a plant is considerable; so considerable that many are deterred from the use of glass even when convinced that it is desirable and profitable.

To the general grower or market gardener whose business is not a large one, we recommend the glass house or unheated greenhouse. A house of this description was built on the Government farm at Truro, N.S., a few years ago. for the purpose of showing the farmer boys that a few feet of glass might be enjoyed by all, and that it was really necessary on every farm. For the purpose for which it was built it has worked well.

The house is twenty feet wide and twenty feet long. The height at ridge is ten feet, with six foot posts on north side, and two feet eight inches on the south side. The rafters on the north slope are six feet long, boarded and

A Strawberry Patch that Soon After being Photographed was Ruined by the White Grub

This illustration of the strawberry field of J. W. Taylor, of Exeter, Ont., was obtained in June, 1912, during the harvesting of a profitable crop. Four months later the white grub had created such devastation in it there were scarcely enough plants left to set a new bed.

A 150-Foot Tomato House
Crop Grown in York County, Ont.

shingled. The part of the roof next the ridge is hinged and used as a ventilator—a space about eighteen inches wide. The south slope of twelve feet is of glass with wooden sash bars. The ends are partly of glass. The rest of the house is boarded singly and battened.

The door is wide enough to admit a wheelbarrow. Inside the house is a bench two and one-half feet wide under the south wall. The walk is two feet wide. A hotbed is placed in the centre six feet wide and two and one-half feet high. The ordinary amounts of soil and manure are used in the bed, and ordinary hotbed sash used as a cover. On the north wall are two shelves wide enough to hold seed flats.

The cost of the building for material did not exceed sixty-five dollars. In some sections where lumber is cheap, and where the greater part of the work is performed by the farmer, the cost would be much less.

The possibilities of such a house are great. The hotbed in the centre is doubly protected and any desirable temperature may be maintained there in March. This will be found a desirable place for starting tomato plants and celery and other plants requiring like treatment. By the time the seedlings are large enough to prick out in flats, the temperature of the main house will be found sufficient for the purpose. After the hotbed is cleared melons or cucumbers may be permanently planted over the spent manure with good prospects of success.

Lettuce is a cold weather crop, comparatively speaking, so that it has been found possible to grow an excellent crop of lettuce in early spring and late autumn without further heat than that given by the sun.

Rhubarb may be forced under the benches, and a surprising amount of stalks obtained, out of season, on a small scale.

Houses of this kind are very popular in some sections. Some are large, comparing favorably with the modern greenhouses and are satisfactory for the purpose for which they are used.

Methods of Blanching Celery*

C. P. Halligan, East Lansing, Michigan

There are different methods that may be used to accomplish the blanching of celery. but on a commercial scale, the only ones of importance practised are blanching by boards and by banking with soil. Formerly most of the celery was blanched by the latter method, but to-day the method employed depends largely upon the time of the year the crop is used. When a crop is to be blanched during the summer months, one of the self-blanching varieties is grown and the plants blanched by the use of the boards, for if the soil method is used at this time, it causes the plants to rust.

When celery is to be blanched during the cool weather of the fall, however, it is blanched by banking with soil which produces celery of an excellent flavor and protects the plants from light freezes. When the crop is to be stored for winter use, it will blanch in storage if the temperature is not too low, and will keep better if not blanched too much in the fields.

BLANCHING WITH BOARDS

When a crop is to be blanched by the use of boards, sound hemlock lumber one inch thick, twelve inches wide, and twelve, fourteen, or sixteen feet long, is selected, although at times boards ten inches wide are used to blanch the earliest crop when the plants are not too large. If small cleats are nailed across the ends and middles of the boards, it will tend to prevent splitting and warping.

In placing the boards for bleaching, they are first laid flat along both sides of the row; then two men working together at each end of the board, raise the edge nearest to the plants. catching up the outside leaves, until the board is brought into a vertical position along the row; then, holding it in place with one hand, the board on the opposite of the row is likewise brought into position. a little soil should be thrown along the lower edge of the boards to close any openings that may be caused by the unevenness of the surface of the soil.

TIME REQUIRED FOR BLANCHING

From two to three weeks will be required for blanching the summer crops, depending much upon the rate of growth and weather conditions. As soon as the crop is properly blanched, it should be harvested, because when left too long it loses its weight and flavor. After the day's harvesting and packing is finished, the boards are carried to another patch of celery and used to blanch another crop. In this way, they are used several times in a single season.

The blanching of fall and winter celery is generally accomplished by the use of soil. This method produces crops of the highest flavor, and for the extensive grower, is the most economical. The banking of celery is generally done by the use of a plow or celery "hiller," which throws the soil up in ridges against the plants. The presence of soil in the heart or crown is conducive to the rapid decay of the plant.

To prevent the soil from covering the hearts of the plants, the rows are first cultivated and then a small amount of soil is banked against the base of the plants by hand to straighten up the stalks and hold them together. This practice, which is called "handling," leaves the plants ready to be banked by the plow or "hiller," and as the crop continues its growth the "hiller" is used to keep the soil thrown up against the plants.

*Extract from Bulletin 60 of the Michigan Agricultural College Experiment Station.

Examine the bark of trunks of all trees, especially peach and plum trees, for borers, also all gummy places on peach and plum trees, and dead places on apple trees, as these are probably caused by the borer. Destroy by digging out with a knife.

Nitrogen promotes leaf and stem growth. So powerful is this influence, that the profitable character of fruit trees and fruit bearing plants may be destroyed and all their energies diverted to the production of coarse, rank shoots and leaves by too liberal an application of nitrogenous manures.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited
PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS ASSOCIATION

H. BRONSON COWAN, Managing Director

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is known as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year: two years, $1.00, and of The Canadian Horticulturist and Beekeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912...	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912, 11,057

July, 1913 12,246

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contrsct that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

MISTAKES IN MARKETING

In nineteen hundred and twelve there was a fairly large crop of peaches on the Pacific Coast, for which the only available market was Alberta, Calgary being the chief distributing point. With commendable enterprise those who had charge of the selling of the peaches visited the large wholesale merchants in Alberta and sold a fair proportion of the crop at a stated price. As the season advanced, it developed that there was still a considerable surplus for sale in the hands of the growers. The selling agents made their mistake in the sale of this surplus, if indeed so mild a term as "mistake" can be applied to the transaction.

With the full knowledge that the wholesale merchants had bought all that they considered it discreet to buy, they still took this surplus fruit and shipped it to other merchants in the same market, on consignment. The fruit, of course, could only be sold at prices lower than that which was held by the other dealers and, as a consequence, the market generally was badly demoralized. Surely it was only a matter of common honesty on the part of the peach growers to protect the men who had bought outright and at a fixed price earlier in the season. In all probability, the growers will have plenty of opportunity to reflect on their mistake when they again try to dispose of the crop at fixed prices.

Another instance: A cooperative association in Ontario, putting up a splendid brand of fruit, shipped to the north-west and sold largely early in the season at a fixed price. They still found themselves with several thousand barrels unsold. These they stored at a convenient selling point in the north-west, and during the selling season they were disposed of at whatever price they would bring, in direct competition with their own fruit in the hands of those who had bought outright. As a matter of record the prices in February and March were lower than the prices paid by the dealers for the same grade of apples in October, and this lowering of the price was largely the result of the surplus fruit thrown indiscriminately on the market by the agents of the growers.

One more instance, this time from Aberdeen, Scotland. When urged to buy the apples of a cooperative association, one of the largest firms replied:

"As a rule I have found that the co-
"operative societies hold their prices so
"high at the opening of the season that
"business has been quite impossible, and
"then what surprises me all the more is
"that later on in the season, I can usually
"buy the packing of the same cooperative
"societies on one or other of the largest
"markets at a great reduction. If co-
"operative associations wish to develop a
"regular trade, then it is unwise to pre-
"tend inflated values because they imagine
"that when they get an inquiry they have
"a man on the line who must buy."

What might have been but was not done in the peach deal and apple deal here noted was to have re-embursed the merchants with the difference between the slaughter price of the surplus and the fixed price at which they sold fruit to these merchants earlier in the season. Unless fruit growers are willing to deal upon these terms there appears to be little chance of confidence developing between producer and merchant—as long as practices, such as those recorded, are continued. The central selling agencies that have been formed by the local organization should bear these conditions in mind and build up the confidence of the trade by striving for their removal.

OUR WILD FLOWERS

True lovers of nature cannot but view with regret the rapid disappearance of many of our wild flowers. Unaided by the hand of man, nature has given to these products of her art a charm that is all her own. In what more delightful way could one spend an afternoon than by strolling through the shady woodland aisles, and in her perfumed jewels in their mossy settings, see nature at her best.

Against the onward march of civilization nature has had to give way. The wild flowers that were once so plentiful are rapidly disappearing. Our woodlands have become the grazing grounds of cattle or have been turned into parks. Probably the former practice has been responsible more than any other for the destruction of the wild flowers. Woodlands are of little or no value as pasture and for the conservation of our forest wealth, cattle should not be allowed to graze in wood lots.

In the management of our parks more attention should be paid to the preservation of the wild flowers. Every effort should be made to introduce the once profuse flowers that are now so conspicuous by their absence. Some varieties are now almost extinct. The Ontario Horticultural Association might well devote attention to their preservation.

ADVERTISING THE APPLE

Fruit growers have recognized that if the buying public is to be convinced of the importance of the apple, both as a food and a table delicacy, constant and judicious advertising is necessary. Just how to obtain the money necessary to finance an advertising campaign, and in such a manner that those who would derive the greatest benefit from such advertising would bear the larger share of the burden, has been a knotty problem.

The Advertising Committee of the National Apple Shippers' Association in the United States has evolved a unique solution to the difficulty, which promises to meet with considerable success. In brief, it is the "Stamp Plan." The committee are to issue stamps of one and two cent denominations, which will be purchased by the shippers and placed on the packages of fruit, a one cent stamp being placed on a box and a two cent stamp on a barrel. Thus the man who has one hundred packages to ship will buy one hundred stamps, paying in direct proportion to the amount of fruit shipped and in direct proportion to the benefit which will accrue to him from the advertising.

These stamps will be sold by the Equitable Mortgage and Trust Company of Baltimore, through the many banks throughout the country which act as its agents. The funds received will then be placed to the credit of the Advertising Committee. Experts in advertising are to be retained and an extensive educational campaign carried on.

RAVAGES OF CATERPILLARS

Reports from many districts, but more particularly from the eastern counties of Ontario and western Quebec, state that tent caterpillars have this season been unusually numerous, and the damage done has assumed serious proportions. In fact this pest this been prevalent during the past three years.

The depredations of these insects are over for this season. The caterpillars have successively passed through the pupa and the adult or moth stage and the new generations are now in the egg stage of their existence. The moths lay their eggs on the small branches or twigs of the tree, the egg mass being in the form of a girdle. The eggs hatch in a few weeks but the minute caterpillars remain in the eggs during the winter.

Preventative measures consist in removing and destroying the egg masses. These can be found quite readily when the leaves have fallen. The offering of prizes to school children for the collection of the eggs would prove of great assistance in the control of this pest.

A copy of the annual report of the Ontario Vegetable Growers' Association has come to hand, and as usual is full of information of interest and value to vegetable growers. We notice, however, that unlike most reports of this character it does not contain a statement of the receipts and expenditures of the asociation for the year. While it is true that the year of the association does not end at the time the annual convention is held, arrangements might easily be made for the publication of a statement which would show the financial standing of the association and character of the work it is doing. This is information with which the public has a right to be furnished, and which should be included in the report.

PUBLISHER'S DESK

Year by year an increasing number of the readers of The Canadian Horticulturist have been asking us for information concerning greenhouses in the home and their management. In some instances there has been a desire for articles dealing with large conservatories such as owned only by the wealthy few. An effort to meet this demand has been made in this issue of The Canadian Horticulturist. This is the first occasion on which we have devoted so much attention to greenhouse work. We feel sure that those of our readers who have been looking for information along these lines will appreciate this issue to the full as well as many others who may not be as yet in a position to own a greenhouse, but who have pleasant visions for the future.

The September issue of The Canadian Horticulturist will be our third Annual Fall Packing and Exhibition Number. It will maintain the high standard established by the first two issues. There will not only be a special front cover, showing a packing scene in a large Canadian orchard, but the articles throughout will be appropriate and timely in character. While we cannot as yet speak definitely with regard to all the articles we expect that the subjects that will be discussed, each by one of Canada's foremost authorities, will include the following: "Packing Peaches for the Export Trade," "Interprovincial Trade-Needed Regulations," "Improving Nova Scotia's Apple Pack," "Common Mistakes in the Packing of Fruit," "Improvements Needed in the Barrel Pack," "Packing Tender Varieties of Apples," "What the Western States can Teach us in Packing," and "Popular Packs for Ontario Apples." In the vegetable department there will be a special article dealing with the preparation of vegetables for market. The floral pages will also be strong. They will include the description of a garden of a rose enthusiast, by Mr. F. E. Buck, of Ottawa, as well as a page of timely notes dealing with the work every amateur gardener should attend to during September. There will be a number of other short articles, and numerous illustrations. Throughout it will be possibly the strongest issue of The Canadian Horticulturist we have ever published. The issue will be national in character as the contributors will be leading authorities from each of the principal horticultural provinces. The illustrations will be a special feature in this number. Advertisers will do well to apply for space early.

A glance at the circulation statement on the adjoining page will show that last month's issue of The Canadian Horticulturist was mailed to the largest number of paid subscribers in the history of The Canadian Horticulturist. Nothing is done to force the circulation. It is a natural growth that reflects the steady development of the fruit growing and horticultural interests generally of the Dominion. While the development during the past few years has been rapid we anticipate still more satisfactory progress for the future.

Those readers of The Canadian Horticulturist who have subscribed for the second edition called The Canadian Horticulturist and Beekeeper, seem, from all we hear, to be delighted with the publication. Its circulation is growing rapidly. The Ontario Beekeepers' Association alone has forwarded some eleven hundred subscriptions. The subscriptions received are from persons living from one end of Canada to the other. Thus this edition of the paper is as truly national in character as is the general circulation of The Canadian Horticulturist.

A number of our readers have written asking why they have not received their songs in accordance with the offer made in our June issue. We regret the delay. It has been owing to the slowness on the part of some of our readers in sending in their answers. The list is now under preparation, and the songs will be sent out this month. We desire to thank our subscribers for the interest which they took in the contest.

SOCIETY NOTES

Ottawa

The annual rose and pæony show held on June 24, was one of the prettiest exhibitions ever held by the Ottawa Horticultural Society. Garden flowers of every kind were there and the artistic arrangement did much to add to the beauty of their general appearance. Probably the most beautiful exhibit was that entered by the Experimental Farm of Ottawa, including a large number of pæonies in full bloom. These plants had been imported from abroad, and had been raised at the Experimental Farm. Another attraction was a special exhibit of roses from Mr. R. G. Farrell.

A splendid collection of palms and potted plants was loaned to the society by Scrims, the Ottawa florists and made a most effective decoration. The entry list was a large one, and numerous prizes were given.

St. Catharines

The tenth annual Rose Show of the St. Catharines Horticultural Society, held on June 20, was an unqualified success. When compared with some of the first shows held by this society the progress made has been almost phenomenal. The showing of roses was magnificent. The judges, H. G. Mulliss, of Brampton, and Mr. S. E. Davidson, of Fonthill, had a difficult task to pick the winners. When it came to the selection of the prettiest exhibit at the fair it was a toss up between the lovely sprays of Lausendshose exhibited by Miss Helen McFarlane and the President rose shown in Major Leonard's collection.

In the floral table decorations the first prize went to Miss L. Watson. The silver cup for the twelve best blooms was won by J. A. Abbs. Mrs. J. W. Gordon won the gold medal for the six best blooms, the silver medal going to J. A. Abbs, and the bronze medal to A. E. Austen. Much praise is due the officials of the society for the splendid manner in which the show was conducted.

Toronto

"The best ever," was the opinion expressed by those who attended the monthly show of the Toronto Horticultural Society, which was held in Forrester's Hall on July 5th. The display of roses was judged to be the finest ever staged in the city. An encouraging feature was the large number of exhibits from amateurs.

A charming display of sweet peas in all the newer and rarer varieties was made by Sir Edmund Osler. Large displays in roses and other flowers were shown by Sir Henry Pellatt, Mr .J. P. Moore, Miss Jardine, Mr. Geo. Baldwin, Allen Gardens, Mr. D. A. Dunlap, president of the society, Mrs. Allan Baynes, and many others. Many varieties of Giant Larkspur were exhibited, forming a bank of solid blue along one side of the hall. An orchestra added to the enjoyment of the evening.

A feature of the work conducted by the society is a campaign for city beautifying. Citizens are urged to beautify their front lawns by planting flowers and by other means. Competitions for the best kept lawns are being held on the various streets.

Ontario Rose Society

The newly organized Ontario Rose Society held its first exhibition on July 3rd, in George's Hall, Toronto. In spite of the hot weather much interest was taken in the event and the show was a decided success. The largest exhibit was that of Mr. Bryson, rose grower for Mr. T. J. Moore. The society's cup went to the Alexandra Art Gardens and the challenge cup offered by Mr. Moore, to Mrs. T. A. Chisholm.

The object of the society, as outlined by Mr. Moore, the Honorary President, is to encourage the cultivation of roses in Canada, as well as to encourage the beautification of Canadian towns and cities. After the show the flowers were presented to the different hospitals in the city.

Better Transportation Facilities Needed

THE need of something being done to ensure a better railway service in the supplying of cars, a better mileage rate in transit, and a more prompt delivery at terminals for fruit shipments was forcibly brought before the Railway Commission at a sitting in Ottawa, June 16th, by G. E. McIntosh, the transportation agent of the Fruit Growers' Association of Ontario, when the questions of reciprocal or average demurrage were considered.

At present a shipper who allows his car to remain more than twenty-four hours of free time at terminals before unloading is fined one dollar a day for every day beyond such free time. Last winter the Board raised this to two dollars and three dollars for the first and second day, for four months as an experiment, but the experiment did not bring about the result which the railways claimed would be forthcoming, viz., that cars would be released by consignees and could then be supplied promptly to the shippers. The fact then is apparent that the fault is really congestion at terminals, which can only be remedied by the railways in providing better terminal facilities.

RECIPROCAL DEMURRAGE

The fruit shippers are asking for reciprocal demurrage, that is a system by which the railway, as well as the shipper, would be fined for delay in unloading, according as one or the other was responsible. The same would apply in the ordering of cars. If cars were not supplied in forty-eight hours, the railways would pay the shipper demurrage for each day's deday, and if supplied and not loaded in proper time, then the shipper would pay the same rate. Delays in transit, or in placing would, or should, be in the form of a penalty.

By the average demurrage system the charge on all cars held for loading or unloading by shipper or receiver would be computed on the basis of the average time of retention to all such cars released during each calendar month, as follows:

A credit of one day allowed for each car released within twenty-four hours of free time, and a debit of one day charged for each twenty-four hours beyond the first forty-eight hours of free time.

At the end of the month the total number of days credited will be deducted from the total number of days debited, and one dollar a day charged for the remainder.

Mr. McIntosh said the fruit shippers of the province favored the reciprocal plan, believing that its adoption would be a fair settlement of the question, whereas the average plan would discriminate against the small shipper in favor of the big one. They, however, would gladly accept any ruling whereby the service would be made more satisfactory, irrespective of a penalty.

DELAYS COSTLY

The delays last season in supplying refrigerator cars for the fruit shipments of this province, according to Mr. McIntosh's evidence, had cost the growers several thousands of dollars. He reported that out of forty shippers, requiring one thousand one hundred and eighty-six refrigerator cars, twenty-six of them experienced delays in getting cars after ordering them, of from four to thirty-eight days, and in some instances were compelled to use box cars. An instance was given of one shipper who ordered eight refrigerators on October 24th. He received two on November 28th, one on November 30th, and one on December 1st, but no more until December 13th. Another ordered six on November 4th, and received the first car on December 10th. So on all through the list of twenty-six shippers, ridiculous delays were referred to.

Delays in transit was another matter upon which some striking evidence was submitted by Mr. McIntosh. These were on everything required by the fruit grower, from the nursery stock to the orchard product, including spray material and fruit packages. On fruit shipments to the western market, Winnipeg shipments travelled as slow as two and three-quarter miles an hour; Brandon from four and three-quarter to ten miles an hour; Regina four and three-quarters, five and one-half, and six miles an hour, and several other points about as bad.

Conditions at export points were also referred to, instances being quoted where cars were held back a full week and more during severe cold weather, and were badly frosted. Fifty-seven shipments of nursery stock by one shipper to points in Ontario, during the month of May, was even acknowledged by the railway representatives to be a most shameful condition of affairs. Some of these required seventeen days going twenty-three miles, fifteen days going twenty-eight miles, twenty-two days going thirty-seven miles, twenty-six days going seventy-two miles, and so forth throughout the whole fifty-seven shipments.

Similar reports to the above were submitted on the placing of carload shipments of fruit after arrival at destination.

RATE OF TRANSIT

Ten miles an hour, was Mr. McIntosh's reply to Chairman Drayton's inquiry as to the rate of transit at which he thought the fruit should be delivered. This, he said, was not unreasonable, when the high rate charged on fruit is taken into consideration.

To the great fruit industry of this province the decision of the Board upon this important problem means considerable. Fruit growers pay a high rate because of the perishable nature of their commodity and deserve, therefore, the service for which they pay. "No company obtaining its right of operation from the Government, which is in reality the people," said Mr. McIntosh, "should be allowed to serve or so humbug the people, causing those who make their operation possible, great loss either through carelessness or a defective system."

Central Selling Agency for Ontario Fruit Growers

ONTARIO fruit growers have decided on advancing another step, as they are now to have a central selling agency. Representatives of the various local associations met in the Parliament Buildings, Toronto, on June 17th, for the purpose of amalgamating the local associations into a central agency. Of the fifty-two associations in the province, twenty-four were represented at the meetings.

During the discussion it was shown that more centralized cooperation was necessary in the marketing of Ontario fruit. Heretofore, the different associations had been bidding against one another, and buyers had been inclined to pit one company's offer against that of another. Under these circumstances the formation of a central selling agency was deemed advisable.

After some considerable discussion it was decided that the local associations should guarantee fifty thousand barrels of apples, or the equivalent in their fruits. Each association will subscribe for stock at the rate of one hundred dollars for every thousand barrels of apples or the proportionate amount of other figures which it shall offer to the company for sale. The minimum amount of stock which will be allotted is two hundred dollars, representing two thousand barrels or forty carloads of tender fruit. A charge of twenty-five cents a barrel will be made for selling apples, the amount to be withheld from the returns made to the company. After paylng the running expenses of the company and setting an amount for dividends and reserved fund, any surplus earnings will be returned to those associations which took stock in the company in proportion to the number of barrels of fruit sent in by them for sale. According to the by-laws only one vote is allowed to shareholders, no matter how much stock is held.

The charter of the association gives the company power to manufacture and handle all supplies and appliances required by the association and also to carry on a business of refrigeration, cold storage, forwarding agents, and packers of provisions of all kinds.

It is understood that the fruit offered for sale shall be a proportionate amount of all varieties or a stated number of barrels of all varieties grown by the members of such associations. All apples offered for sale shall be subject to the inspection of the company's officers, who may reject same before shipment if not up to grade. Any car lots reported as arriving in bad condition will be examined and where the local shipping association is at fault the matter will be adjusted and such association will have to stand the loss and expense. Where the transportation is at fault the company will look after the collection of damages from the railway company, no loss being incurred by the local associations. Apples of each variety and grade shall be pooled, the directors at the close of the season setting the prices to be paid to the local associations for their output.

The officials are: President, Elmer Lick, Oshawa; vice-president, Robt. Thompson, St. Catharines; directors—C. W. Gurney, Paris; Adam Brown, Owen Sound; Roy A. Carey, Oakville; sec.-treas., P. W. Hodgetts, Toronto.

STOCK ALL PLACED

In a recent letter to The Canadian Horticulturist, Mr. Hodgetts says: We have practically closed our stock book for the first issue of stock and find that we have thirteen associations who have subscribed for the minimum amount of stock, two thousand dollars or over. This is about one-quarter of the Associations in the province, but will represent about fifty thousand barrels of apples for the first season's business, which is the amount that the directors of the company felt able to handle the first season. We hope next year to issue more stock, so as to take in a number of the other associations that were not able to see their way clear to joining this season.

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THE CANADIAN HORTICULTURIST AND BEEKEEPER
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THE BEEKEEPERS' REVIEW was fortunate in securing from its correspondent, Mr. J. J. Wilder, his write-up of a successful system of management of **3000 colonies of bees in 50 yards.** As all up-to-date honey producers will be interested in this great series of ten articles beginning in the July number of the Review, we will for 50 cents mail the Review for the last half of 1913, containing the first six articles of the series, and in addition (to those who ask for it) send the April and May numbers of the Review containing the report of the National meeting at Cincinnati. Those two numbers alone contain 96 pages. Subscribe to-day! Don't miss a single number containing the series, **3000 colonies in 50 yards managed from one office.**
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THE BEEKEEPERS' REVIEW
NORTHSTAR · · MICHIGAN

Ontario Fruit in the West

The complaints from Western buyers in regard to the condition of Ontario fruit as received by them are still far too numerous. It is noticeable, however, that conditions are improving. Affairs are not in such a bad condition as some of the reports that have been appearing in the public press would indicate. In a recent letter to The Canadian Horticulturist, J. A. Ruddick, Cold Storage Commissioner, writes:

"It must be admitted that there is still great room for improvement in the packing of Ontario apples, but the packing is very much better done now than it was a few years ago. The operation of the Fruit Marks Act has made everybody much more critical and we now hear complaints about defects in the packing that would have formerly gone unnoticed. That Ontario is still supplying the larger proportion of the market in our Canadian West is proved by the following figures: In the season of 1912 and 1913 the quantity of apples marketed in Manitoba, Saskatchewan, and Alberta was four hundred and ninety-five thousand barrels, of which Ontario supplied two hundred and thirty-eight thousand barrels, British Columbia seventy-five thousand, Nova Scotia eighteen thousand, and the United States one hundred and sixty-four thousand. This estimate is based on figures secured by the fruit inspectors who are located at all car load points."

MUST USE BOXES MORE

"It is to the growing market of the West that Ontario fruit producers must look," is the manner in which P. W. Hodgetts, of the Ontario Fruit Division, sums up the situation. "The Old Country market is at present not very strong. To cater to the demand west of Winnipeg the boxpack will have to be adopted almost entirely. For points east of Winnipeg there is still a good opening for barrel packed apples. The Western Grain Growers' Association is planning to work up a fruit trade in the west through the twelve hundred branches of their own organization."

The opportunity to thus build up a trade through the Western Grain Growers' Association is one that should be grasped by Ontario Fruit growers.

An Important Ruling

Early in the season the Fruit Growers' Association of Ontario, through their transportation agent, G. E. McIntosh, of Forest, appealed to the Railway Commission for an order directing the railway companies within the legislative authority of the Parliament of Canada, to furnish refrigerator cars equipped with rack or slatted floors, and to reimburse the cost of such when they have to be furnished by the shippers themselves.

The Board at that time directed that the railways report the number of refrigerator cars in service so equipped, and the number not slatted.

On June 21st the following order was issued:

"It is ordered that where shippers furnish slats for the floors of refrigerator cars not equipped with permanent slatted or double floors, or for the floors of box cars tendered to and accepted by shippers in lieu of refrigerator cars, for the carriage of fresh fruits, railway companies subject to the jurisdiction of the Parliament of Canada shall allow the shipper three dollars ($3.00) per car for the said slatting; the shipper to be permitted to deduct the

DOUGLAS GARDENS, OAKVILLE ONTARIO
PÆONIES
In Pæonies, the trend is to select the finer sorts rather than the low-priced ones. In plants of such a permanent character as these the first cost should be a secondary matter: quality should be the first consideration. Too much cannot be said of the following sorts, viz.:
WHITE
No.
8. Avalanche, strong grower, free bloomer, fragrant, late, extra fine. Each $2.50.
40. Dupont, Mons, tall, free bloomer, fragrant, midseason. Each $1.
50. Festiva Maxima, tall, strong, vigorous grower, early, very popular. Each 50 cts., 10 $4.50.
76. Duchesse de Nemours (Calot), vigorous grower, medium height, fragrant, early. Each 75 cts.
79. Or, Couronne, d', splendid grower, free bloomer, late, one of the best whites. Each 80 cts.
PINK
18. Calot, Madame, pale Hydrangea pink, extra fine. Each 60 cts.
42. Edulis Superba, strong, upright grower, fragrant, early. Each 40 cts., 10 $3 50.
43. Elie, Mons. Jules, very large blooms, strong grower, fragrant, early. Each $1.25, 10 $12.
61. Golden Harvest, dwarf grower, free bloomer, fragrant, midseason. Each 75 cts.
96. Umbellatu Rosea, very strong, upright grower and free bloomer, very early. Each 75 cts., 10 $7.25.
RED
25. Crousse, Felix, vigorous grower, med. height, fragrant, midseason. Each 75 cts.
36. Devred, Constant, med. height, strong, erect stems, fragrant, very late. Each $1.
We have many other fine sorts described in our Fall Planting List, which is now ready for distribution.
The buying of fine Pæonies is a good investment.
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said allowance from the freight charges payable by him upon the shipment in such car in which the said slatting has been furnished; the shipper's receipt for the amount so allowed to be given the railway company's agent at the forwarding station, and to be accepted by him as so much cash in the prepayment of the freight charges.

"(Signed) H. L. Drayton,
"Chief Comissioner."

The commission's rulings upon this matter means considerable to a great many shippers of fruit. The cost to some in the Niagara district has run over three hundred dollars in one season for slatting cars. From all over come reports of this extra expense in fitting cars before the same are suitable for carrying the fruit.

Ontario Fruit Crop Conditions

The latest report on the crop prospects for the Niagara district issued by the Fruit Branch of the Ontario Department of Agriculture, under the direction of Mr. P. W. Hodgetts, is not over-optimistic. The apple crop is estimated at forty-five per cent. of an average yield. The early season prospects were good, but the cold weather has resulted in a heavy falling off. Baldwins and Spys are light but Greenings and Kings will average better.

The outlook for early peaches, including St. John's and Crawfords, is for a light crop. Late peaches promise better. The following percentages show the estimate of the general crop of the district: Red currants, 73 per cent.; gooseberries, 70 per cent.; raspberries, 84 per cent.; cherries, 76 per cent.; Japan plums, 70 per cent.; European plums, 66 per cent; early peaches, 72 per cent.; late peaches, 76 per ent.; pears, 75 per cent.; grapes, 75 per cent.; tomatoes, 86 per cent.

Canadian Fruit in Holland

Canadian Trade Commissioner, Rotterdam, Holland

Judging from the number of enquiries from firms in Holland in regard to the output of evaporated apples in Canada, it is certain that a great market exists here for these products. Experience in the United Kingdom leads to the belief that the lower grades of fresh apples sold in barrels at very small prices might, when carefully packed and boxed, be marketed to better advantage as evaporated. A high class and dependable brand of evaporated and dried apples should take well here even in competition with the California dried fruit.

The fruit crop throughout this country will be light. Late in May a severe hail storm did much damage. The apple crop promises fair but conditions are far from satisfactory. Because of frost during June, plums will be very light; English Damsons almost a failure. Pears bloomed abundantly, but are not bearing well.

National Land and Apple Show

Considerable interest is being taken in the Land and Apple Show to be held at Winnipeg from October 10th to 18th. This is the first National Land and Apple Show to be held in Canada. The management report that it is to be distinctly for the products of the land, not for the land itself. It will provide opportunity for displays of the products of the orchard, the farm, the forests and the waters of Canada. Eastern fruit growers will be given an opportunity to show what the east can produce in the line of good fruit. Of late years Ontario fruit has received a number of bad reports from that market. Ex-

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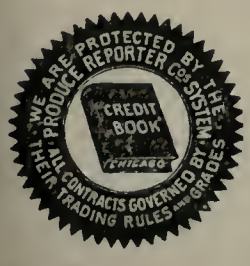

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References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

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W. J. REID, President A. M. HUNT, Secretary

hibits of good fruit at this show may help to set things right.

The show is not a private enterprise. Any surplus earned will be devoted to the establishing of scholarships in provincial agricultural colleges. The prizes to be given for fruit will be announced at a later date as will also the special passenger and freight rates.

Annual Meeting of United Fruit Co's, Ltd.

One hundred and twenty delegates, representing thirty-two local fruit companies, met at Berwick, N.S., on July 2nd and 3rd to hold the first annual meeting of The United Fruit Companies of Nova Scotia. The success that has attended the formation of this company has been watched with interest by fruit growers throughout Canada. Great optimism and enthusiasm was shown by the delegates for, as the president, Mr. John Donaldson, of Port William, said in his opening address, "what other countries and other organizations have taken years of work and thought to accomplish, has been done in one year by the fruit growers of the Annapolis Valley."

The president urged the members to maintain the high standard that had been set for the fruit pack. A pleased customer is the best advertisement for the company. The following he considered as some of the problems that would have to be met: The necessity for more rapid packing and shipping of early varieties, and for cold storage facilities, the advisability of box packing; the need for more expert knowledge in barrel packing and imposing of a penalty for careless packing; the advisability of raising the standard for number threes, and thus reducing the amount of fruit to be packed; the establishment of evaporating and vinegar factories for the disposition of culls; better methods of managing subsidiary companies.

SECRETARY'S REPORT

The annual report was presented by A. E. Adams, the executive secretary. It called attention to the difficulties that had been met in operating the company in the initial year of its existence. While large savings had been effected it was expected that still better work would be done this year. The total expenses of the central had amounted to only $12,000, or three cents per barrel on all fruit handled. On this basis there was absolutely no comparison between the expenditure of the company and that of other similar but small institutions throughout the North American continent.

The company had fought a hard battle to obtain a stand on the western market. T. H. Morse, the company's representative, had sold some sixteen thousand barrels of Gravensteins at two dollars twenty-five cents a barrel, ones and twos. Speculators, however, began to quote one dollar fifty cents and one dollar sixty cents a barrel, with the result that the market was demoralized. The result was that the price had to be dropped to two dollars and further sales were made impossible. The reason that speculators were thus enabled to underbid the company was that growers outside of the associations had been stampeded into selling their Gravensteins to the speculators at one dollar twenty-five cents a barrel for ones and twos. The company lost five thousand dollars on Gravensteins alone.

MARKETS EXTENDED

In New Brunswick, M. K. Ells, another of the company's representatives, had sold a firm eight thousand barrels. This firm

Concerning Locating and Planning Your Greenhouse

Speaking of location, it is a mistake to think that the greenhouse should be placed in some isolated corner where it will be out of sight. If properly planned and designed, it can well occupy a prominent location and become one of the most interesting features of the grounds.

If possible, your location should be one that will make the care of the houses a convenience—an arrangement that will secure the amount of light required for each compartment, and economy both of fuel and labor in operation.

Also of great importance is the right placing of the cellar for the boiler, to secure perfect heating conditions. Last, and by no means least, you want the best possible setting, architecturally. All of this, of course, applies to the small house as to the larger groups.

If you have more extensive ideas for a greenhouse than you feel your pocketbook will immediately permit you to build, then have the greenhouse builders plan the scheme as you want it to be when fully completed —then erect such houses as it is important to have at once, and from time to time, add others until the plan is carried out.

In doing this the importance of preserving an attractive architectural balance can always be foremost in mind.

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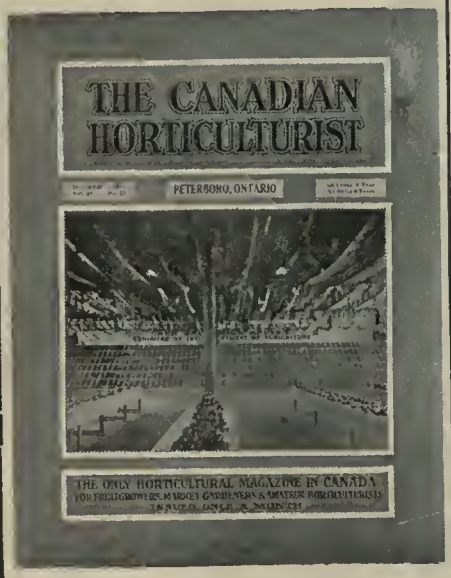

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The Canadian Horticulturist

PETERBORO, ONT.

was so pleased with the pack that they sent in an order for thirty thousand barrels for this season, which would constitute their entire stock.

J. N. Chute, the London representative, had handled over three hundred thousand barrels for the company on the European market. On the whole, prices received by the company were well above those generally received by the average grower.

Over three hundred car loads of fertilizer had been bought for the members at a total saving of eighteen thousand dollars over previous prices. The total supplies purchased by the company amounted in all to one hundred and fifty-three thousand dollars, "which had been paid for in spot cash."

The members showed their appreciation of the services rendered by those who had charge of the operation of the company by re-electing them to office: President, John Donaldson, Port Williams; recording secretary, M. B. Davis, Bridgetown; board of management, chosen from the directors elected by each company, John Donaldson, Port Williams; Fred Johnson, Bridgetown; . E. McMahon, Aylesford; E. B. White, Berwick.

Grant for Agricultural Education

According to the announcement of the Ontario Department of Agriculture, a rather small portion of the one hundred and ninety-five thousand dollars granted by the Federal Government for agricultural purposes, will be devoted to the extension of the fruit industry. The largest item, eighty thousand dollars, is to be devoted to the upkeep of the district representatives.

For demonstration work on spraying, pruning and packing of fruits, only three thousand dollars is voted, a diminutive grant when we consider the importance of the fruit industry. In addition, five hundred dollars has been voted for lectures on horticulture. The beekeeping industry has been recognized as well worthy of consideration, and one thousand dollars has been voted for demonstrations along beekeeping lines.

Fruit Growers Organize

The number of fruit growers' associations in Ontario has been augmented by the formation of an association for the counties of Stormont, Dundas, and Glengarry. The new organization will be known as The St. Lawrence Valley Fruit Growers' Association. Its object is the cooperative selling of fruit, which will consist chiefly of Macintosh red apples.

At the organization meeting it was decided to affiliate with the Provincial Fruit Growers' Association and to make an exhibition of apples at the next Ontario Horticultural Exhibition in Toronto. The president of the new association is W. G. Robertson of Morrisburg; vice-president, L. A. Parisian, of Summerstown; secretary-treasurer, E. T. Bradt, district representative, Morrisburg.

The Canadian Horticulturist is very interesting. I spend many happy hours reading it.—Thos. K. Hogg, Birkenhead, Eng.

Enclosed you will find $5.00 to pay my subscription ten years in advance.—W. M. Haight, Lozells B.C.

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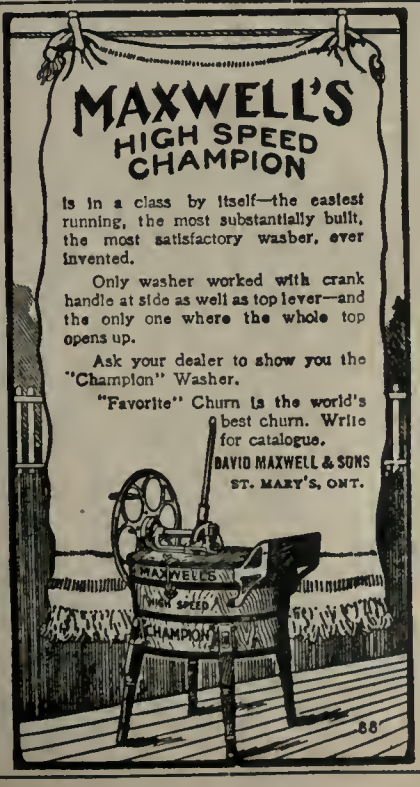

The Ruling on Express Rates

In announcing the ruling of the Board of Railway Commissioners reducing express charges in western Canada by twenty per cent., the recently appointed chairman of the Board, H. L. Drayton, reported as follows:

"In my view the express rates charged by the defendant companies in the prairie provinces and in British Columbia are unreasonable. Reductions which have been made, and they are many, as shown by the companies' tariffs, are reductions which only little affect the manner in which the bulk of the tariff is moving, or are perhaps compensated by additions which have been made to the rates, presumably in the levelling process, in establishing a mileage basis of standard rates, as provided by the judgment. I am of the opinion that an approximately average reduction of twenty per cent. should be made by the companies in the standard maximum tariff for traffic classified as merchandise to apply only to the prairie provinces and to British Columbia."

DIFFERENCE DEFINED

After defining the difference between freight and express traffic the judgment continues:

"Both Mr. Hanna, of the Canadian Northern, and Mr. Stout, of the Dominion Express, urged very strongly that the proposal of a twenty per cent. decrease was entirely too radical, not called for by the conditions of business, and unduly oppressive.

"In my view no smaller reduction should be considered. The express business is a matter of railway operation in this country, and the capitalization and bonded indebtedness of the different express companies have been created under such circumstances as to require no consideration in striking a rate I can add nothing useful to what the late chief commissioner under this head said in his exhaustive judgment. The test of the rate is largely its reasonableness, in view of the service supplied, and in directing the reduction now made by this judgment, the board, I think, would be but adopting a rate basis at the present time, and in the light of the different aspects of revenue and operation now presented certainly as reasonable from the standpoint of the carrier as from that of the shipper."

Oppose Increase in Tariff

Should the Dominion Government act on the request of the British Columbia Fruit Growers' Association and move to increase the duty on fruit imported from the United States it is evident that the proposal will be vigorously fought by the people of the prairie provinces. This was shown by the discussion which took place in the House of Commons, when Hon. Martin Burrell introduced his resolution to amend the Inspection and Sales Act as it relates to foreign fruit, and designed to compel foreign growers competing in the Canadian markets to conform with Canadian regulations regarding the marking of boxes, inspection, and similar points.

Mr. Burrell said that the proposed amendment had been prompted by representatives from fruit growers all over Canada, and was designed to place Canadian fruit growers and United States growers on an equal basis.

Mr. Knowles of Moose Jaw saw in the proposed amendment an underhand attempt on the part of the government to increase the protection of the British Col-

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fuel economy and power efficiency are given special attention. The result is an engine that runs effectively on gasoline, kerosene or low grade distillate—maximum results at a minimum cost. The cost of engine distillate is less than one-fourth that of gasoline.

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umbia fruit growers. The resolution proposed to place in the hands of the minister power to impose a duty by stopping the importation of fruit. The minister was a fruit grower, and the fruit growers apparently had his ear to a greater extent than had the grain growers, who were fruit consumers. The growers of Oregon and Washington had such a wide market that any restrictions which might be placed on their exports to Canada might have the effect of making them abandon the Canadian market altogether.

Mr. Burrell declared that there was no underhand intention in the resolution. It was simply designed to place both competitors on the same footing. The growers in Canada, under present conditions, had to adhere to strict regulations, which the United States growers had not.

Mr. Buchanan, Lethbridge, while favoring the fostering of the Canadian fruit industry, did not believe anything should be done which would lessen competition.

Mr. Douglas, of Strathcona, feared that the proposed amendment would place large powers in the hands of the fruit inspectors of the department, which might be used to cause delay and vexation to importers and increase the cost to consumers.

British Columbia

This summer will see the establishment of a pre-cooling plant at Summerland, B. C. Two rooms in the big packing house at the C.P.R. wharf are to be fitted up for the purpose. One room will be for the rapid cooling of the fruit, the other for cold storage. Ice will be used for cooling, the cold air being driven through the packages of fruit by fans.

The Provincial Department of Agriculture will supply all the equipment and the necessary electric power will be furnished by the municipality. This plant will be a big boon to the Summerland fruit growers.

Bulletins and Circulars

An attractive publication is the 1912 report of the Dairy and Cold Storage Commissioner. It gives a full resume of the work being done by the department for the dairy and fruit industries. The inspection of fruit and dairy products, the extension of markets, cold storage investigation, the shipping of perishable fruits, special information on the packing of fruit, the proper handling of cheese and reports of fruit growers' and dairymen's conventions are dealt with in a manner which makes the report a most valuable one.

A full review of the progress being made in the fruit growing industry in New Brunswick is contained in the 1912 report on Horticulture for that province. Combined with this report is the eighth annual report of the New Brunswick Fruit Growers' Association. It is evident that parts of New Brunswick offer good opportunities for fruit growing. Every phase of the industry as practiced in that province, is fully dealt with in this report.

The Nova Scotia Department of Agriculture has recently issued a bulletin, No. 3, compiled by Robert Matheson, Provincial Entomologist, dealing with the San Jose scale situation in that province. This serious pest has gained a foothold in some sections of the Annapolis Valley. The bulletin discusses the work being done for its detection and eradication.

Bee keeping in all its phases is the subject of bulletin No. 9 of the Tennessee State Board of Agriculture. This publication contains much information of value to beekeepers.

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Dutch Bulbs

Every true flower lover appreciates the beauty and value of Fall bulbs for producing the fine bedding displays of Spring, for Winter blooming in the house, and for permanent additions to the hardy border.

They are so simple in culture and so certain in results that no one who is familiar with their many excellent qualities would willingly be without them.

It is easy to grow bulbs successfully and if you use only sound bulbs of good size, the results are sure to be highly satisfactory. The leading growers in Holland and elsewhere supply us with their choicest stock so that by planting McDonald's Select Bulbs you will have a quality of flowers greatly superior to those grown from the immature, undersized bulbs so commonly sold.

We import our supplies direct so we know that our stock is of the very highest quality obtainable.

Our Fall Bulb Catalogue will give you valuable information about the best bulbs and the best ways to grow them.

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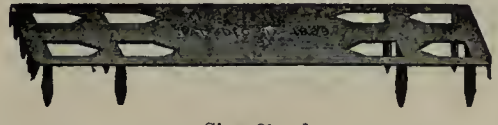

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Fruit Crop Prospects

Weather conditions in Eastern Canada have been very irregular, being mostly too dry and cold. As a result the crop of small fruits in Ontario has been materially shortened and prospects for all kinds of fruit in the Maritime Provinces have been lowered. The dry weather experienced in the Montreal and Eastern Townships districts of Quebec, was hard on the small fruit crop. In British Columbia June was too wet and cold.

APPLES

There has been a serious falling off in the prospects for apples in practically all districts. The average for the whole Dominion will not be over sixty per cent. of a full crop. Good weather between now and picking time will help materially. In Nova Scotia fruit is quite scabby and Gravensteins will be short. Spys and Baldwins will be light in Ontario and Fameuse in Quebec. British Columbia maintains a fair average for winter apples.

PEARS

Prospects for pears have also lowered. In Nova Scotia the crop is practically a failure. Bartlett's will be eighty-five per cent. of a full crop in Ontario, with other varieties short. In the British Columbia coast region the crop is light; inland, somewhat better.

PLUMS

The plum crop will be fair and of good quality with the exception of the lower mainland of British Columbia, where an almost total failure is expected.

PEACHES

In the Niagara district a large crop is expected. Early varieties are better than late. St. John's, however, are rated at only fifty per cent. of a full crop. In no other part of Eastern Canada is there any appreciable crop to affect the market. The British Columbia crop will be below that of last year, but fair in quality.

GRAPES

The grape crop of Western Ontario is about up to the average. The crop is uniform, although not as heavy as last year.

SMALL FRUITS

Strawberries have been short all over Canada. Timely rains have helped the raspberry crop. Other small fruits will in the main be plentiful.—Dominion Crop Report.

Refrigerator Cars for Fruit

At the request of the Department of Agriculture the Grand Trunk Railway System has undertaken during the period August 1st to October 1st, 1913, inclusive, to furnish, when practicable, refrigerator cars for transporting to Montreal shipments of fruit for export. Shippers desiring cars under this arrangement must make a written application stating quantity of ice to be placed in cars before loading, and if cars are to be re-iced in transit, the quanti-

Cellar Wintering

A long article on this subject is to appear in The American Bee Journal beginning with the August, 1913, number, and continuing through September. It is written by

DR. C. C. MILLER

himself a cellar winterer. Dr. Miller gives the results of his experiences and experiments, with comments on the same, in a manner interesting and instructive to all. The October number of the same journal will contain criticisms of the article by Dr. E. F. Phillips, of the Government Department, with Dr. Miller's replies.

The editor of The American Bee Journal, Mr. C. Dadant, is in Europe for a few months investigating the different races of bees, etc., there. Read what he has to say in the coming numbers.

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R. INNES, B.S.A., Manager.

The Canadian Horticulturist

Vol. XXXVI SEPTEMBER, 1913 No. 9

What shall be Our Standard Apple Box?

R. M. Winslow, Provincial Horticulturist, Victoria, B.C.

THE proper size of the apple box is a subject I approach with a good deal of caution, both because I have given the matter considerable thought and because advocates of one size or another have accused me of bias in the opinions I have expressed. It will be my endeavor to present the argument both ways as fairly as I can, leaving the readers of The Canadian Horticulturist to draw their own opinions from the presentation of what I believe are the facts.

I suppose all will admit that the box package must be suitable to the commodity, to the market, and to the packer, providing that cost and convenience are kept in mind throughout. The experience of the Pacific coast enables us to eliminate all but two widely used sizes —the Californian, which is 20 x 11 x 10 inches, inside measurement, and the Northwest Standard, which is 18¼ x 11½x10½ inches. It is as to the adoption of one or other of these, or of both, that the present discussion throughout Canada is about. Fruit growers generally express a wish to discover and adopt the most suitable size now, rather than wait through future years, until the weight of custom makes any change, however desirable, almost impossible.

Two strong arguments favoring the 10x11x20 inch box, now used in Canada, are law and custom. The Inspection and Sales Act, Part 9, Section 325, Subsection 3, requires that: "When apples are packed in Canada for export, for sale by the box, the inside dimensions of the boxes shall not be less than 10 inches in depth, 11 inches in width, and 20 inches in length, representing as nearly as possible 2,200 cubic inches."

The law does not require any particular size or capacity for sale in Canada, but the export requirements have led to the adoption of this box almost universally for our home markets.

BOTH STYLES TRIED

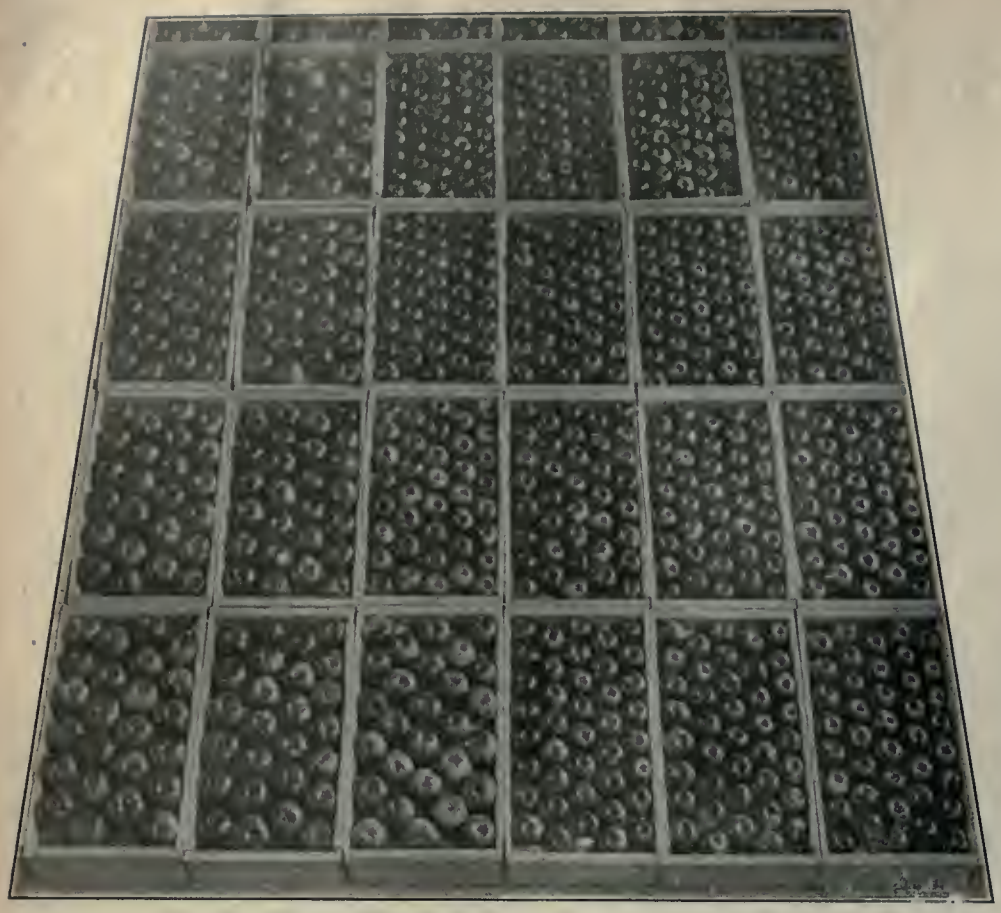
Before the Act was passed, the box now known as the "Northwestern Standard (18¼x11½x10½ inches) was used in British Columbia, but on the passing of the Act, the legal export box was adopted for all purposes, except in the Similkameen Valley. Since that time our packers have all been trained on the long box, the growers are accustomed to it and many of them have developed a sentiment in favor of it.

It is true that the use of the long box distinguishes it from American fruit on all our competitive markets. The distinctiveness so imparted to our product, as against that of the Northwestern States, has, perhaps, some advertising value. This is perfectly true but, unfortunately, the result so far has been discrimination against our box, and consequently our fruit, rather than for it. The short box is well and favorably known, and the Canadian market believes it to hold more fruit than the long box.

Advocates of the short box have claimed as an advantage for it that it holds from three to five pounds more fruit, while some advocates of the long box, now used in Canada, have claimed as an advantage for it that it holds three to five pounds less than the other. Neither is correct. Painstaking investigation has proved that the same apples, packed with equal tightness, will go into one or the other box with equal facility. If our American competitors have put more fruit in their box, it has been solely due to tighter packing and a fuller bulge. The boxes are approximately the same in cubic capacity and properly packed hold the same amount of fruit.

The apple box is in favor of the West very largely because its neat appearance has an advertising value. Advocates of both styles claim that theirs is the neater and the more attractive. It is the general concensus of opinion in the grocery stores, however, that the short wide box has a plumper and fuller appearance, which appeals to the customer in a way

An Evidence of What Ontario Can Do in the Box Packing of Apples. A Portion of the Essex County Exhibit at the last Ontario Horticultural Exhibition.



New Brunswick Fruit Growers Are Beginning to Use the Box. A Sample of Their Pack

the more graceful shape of the long box does not. The customer is inclined to think he is getting more for his money and this is no inconsiderable factor when selling in competition.

Both boxes would cost the same supposing both to be in use together. It is a fact, however, that the long box is costing our Okanagan growers fifteen cents this year, while the short box is costing our Wenatchee and Yakima competitors eight and a half cents. The causes of the difference are many and not easily removed. Because of the difference in style, our shippers are not able to secure the best possible quotations from Washington Mills, so that possibly some of the advantages of competitive manufacture are lost. The difference in the cost of the package alone removes about half the protection of the tariff on apples, thirteen cents a box. More competition for our box business might have some effect in equalizing prices. Our principal box manufacturers are quite willing to adopt the American sizes however.

No one, we think, has questioned the extra strength and rigidity of the short box due to the much greater width of sides compared to the length. Its extra strength is of advantage in handling, especially for the export market. The boxes break less, twist less and there is not so much splitting. Of most impotance, there is not so much side bulge due not only to the stronger sides but to the two-piece tops and bottoms as well. These spring more easily than the single piece tops and bottoms in use with the long box and do not bulge the sides, which may cause so much bruising when the boxes are piled, as they always should be, on their sides. We believe that the short box carries the fruit with less bruising and more safely than does the long one.

It is a great defect in the use of boxes for fruit and vegetables that so many miscellaneous sizes have been developed. There is economy in uniformity and standardization. Our principal fruit packages, the apple box, the pear box and the peach box are of three different depths, and two different lengths. To illustrate: Apple, 20x11x10 inches; pear, 18¼x11x8½ inches; peach, 18¼x11r4 to 5 inches.

The pear and peach boxes have been narrowed from eleven and a half inches to conform with our apple box. They hold less fruit by three to five pounds than the American packages. This handicap could be removed by adopting the Northwestern apple box, and with it the standard pear and peach boxes used by our competitors, and until recently by ourselves.

Our American competitors use boxes of the following dimensions in which the uniformity in length and width may be strikingly noticed: Apple, 18¼x11½x10½ inches; pear and crab apple, 18¼x11½x8½ inches; peach, pear, plum, and tomato box, 18¼x11½x4 to 5 inches.

There is no question of adopting both boxes. No advantage in any market, nor any convenience in the packing, could compensate for the added cost and inconvenience. We do not think our growers would even consider such a thing; they have had too much experience for that.

ABSOLUTE UNIFORMITY IMPOSSIBLE

Fruit packages cannot be absolutely uniform in all dimensions because as great a weight of soft fruit, such as peaches, cannot be packed as in the case of apples and on the other hand the smaller packages would be far too costly for the hard fruit. There is no reason from the packer's standpoint, however, why boxes should not be uniform in length and width. This effects economy in several important particulars. It suits the manufacturer better because all the top and bottom pieces are the same length and width for all three boxes. Then defective apple box sides and ends can be cut down to make the same pieces for the pear box or for the peach box without sawing anything off the end. Then, again, surplus apple box sides and ends may be split to make peach and tomato sides and ends. Lumber for box material is cut to fewer sides as well. All this makes for economy in manufacture.

HANDLING SIMPLIFIED

More uniform sizes also simplify handling in the warehouse and in making up the package. This is a considerable item where box shooks are handled and where fruit packages have to be made up rapidly. Convenience in loading cars is even a greater factor in saving expense. Packages must be of the same length to load well in mixed cars. Different lengths usually require extra bracing and the cost may run several dollars a car higher.

It is quite true that the same saving in handling can be had by lengthening the pear and peach box to correspond with the apple box. It is generally concededed, however, that a peach box twenty inches long would be too fragile to carry safely; the apple box would have to be shortened instead. In the Northwest standard box, 18¼x11½x10½, all the apples are packed on the side; they carry quite well and the appearance is much better than if packed stem or blossom up. The danger of cutting is eliminated. The lining paper for apple and pear boxes could be cut to

one size instead of in two sizes, as at present.

The market is, after all, the final court of decision where any trade practice is concerned. If our markets demand one box rather than the other, that box in spite of all other arguments is the one we must eventually use. If our competitors are using it and we are not, the handicap is just that much greater. Our market commissioners in the prairies have reported consistently for the last four years that the prairie and coast markets prefer the short box. This market takes ninety-five per cent. of our fruit. The Australian market, which takes most of the balance, does not distinguish between boxes at present. Most of the fruit they receive now comes in the short box. The English market first became accustomed to the long box and at that time preferred it. At the present time the best apples they are receiving are coming in short boxes from Washington, and while there may be some sentiment at present in favor of the long box, it is not, in my opinion, likely to endure.

To sum up, we may conclude the box at present in use has in its favor law, custom, and the favor of certain markets. The short box is commended to us by reason of its uniformity with other standard fruit packages, with consequent convenience in manufacturing, warehousing and in loading cars. It is a more attractive package and possibly a cheaper one and, above all, it has the favor of the coast and prairie markets.

Handling Tender Varieties of Apples in Quebec Province

Rev. Father Leopold, La Trappe, Que., President Quebec Province Fruit Growers' Association.

Picking and packing apples in the right way is a science. Ignorance in a large measure accounts for the serious loss that results from off condition of apples on arrival, in transit or in storage.

When should we begin picking? As a general rule the apple is ready to pick when the seeds turn brown and the stem separates with comparative ease from the spur, but this rule is not definite. A man must know from the general appearance of the apple when it is ready to pick, and this he can only learn from experience. In a way the color is the best guide. For instance, in the case of Wealthy, Fameuse and McIntosh apples the color must be a mature one. Duchess may be picked before it reaches its full color, if we intend to export it. But even in this case I would not recommend at all picking Duchess too much on the green side.

An apple is generally ready to pick when it is well ripe. This does not mean that the apple should be ripe enough to be eaten, but ripe enough to be shipped, keep well and have a good taste. To pick apples at this stage is very important. As all apples on a tree do not mature at the same time, like in the case of Duchess, we generally make two or three pickings.

AVOID OVER-RIPENESS

With red apples there is a growing tendency on the part of some fruit growers, on account of the beauty of a brilliant red color, to allow apples to hang too long on the tree. Disappointment is many times the result of such a line of conduct. Last fall many growers were just glowing over the nice weather we had, when there came a big wind storm that made windfalls of half of their crop of Fameuse apples. But this is only one side of the matter.

An apple that is allowed to remain too long on the tree is beautiful in color, tempting to taste, and as far as casual observation goes is in perfect condition. This is what fools many a grower. Such apples are neither in a fit condition to carry far or to hold up in cold storage. Inability to judge the proper maturity for picking brings back many complaints from dealers. One year especially, after a very dry and warm summer, we left our McIntosh and Fameuse too long on our trees, and the falling down in our cold storage plant was very noticeable. An apple will keep just so long under perfect conditions, and we should endeavor to know just when to pick at least the two best varieties that we have in our Province of Quebec—the McIntosh and Fameuse.

The picking of our apples is done every year by our Fathers and a few good students of the Oka Agricultural Institute, under the personal supervision and guidance of one of the Fathers. No matter how perfect may be the picking equipment, good results can not be obtained unless the fruit is handled very carefully. There is no doubt at all that a big percentage of the damage done to our tender varieties of apples from broken skins and punctures takes place before the fruit reaches the packing house. So we train our pickers and do not leave every student who is able to climb a ladder or eat an apple, in our picking or packing crew.

EXPERT SUPERVISION

The superintendent sees that the fruit is taken from the tree without breaking off the fruit spurs, and that the apples are carefully placed in baskets (made especially for the purpose with osier by one of our old Brothers.) These baskets hold about one-half box of loose apples. We think it would be better to line each basket with burlap. Apples should be handled as carefully as eggs for once bruised they do not keep long and have a bad appearance. More apples are bruised in putting them into the baskets, we believe, than in emptying them into the boxes or sorting tables. We always insist that our pickers put

Sorting Apples in the Orchard at the Monastry at La Trappe, Que. This Table is used now only for Barrel Packs.

The wagon used in the orchard at La Trappe, Que. Note the strong springs used to protect the fruit from bruises.

their hands clear down into the baskets until the apples can be placed carefully upon the other apples already in the baskets. Care must be exercised in all points. After the picking crew is properly instructed it is absolutely necessary to insist that these instructions are carried out to the letter at all times.

We find that a hook of wire in the form of a letter S is a great help to do work quickly and better, as then one has his two hands with which to work. One end of the hook catches the basket and the other end a limb of the tree or part of the ladder.

The ladders we use are light but solid. A great many fruit growers think that any old barn ladder that you can lean up against the trees will do all right, but we must to-day adopt modern ways and equipment. Light ladders that are convenient to carry and move around a tree and so compact that they will be easily placed between the limbs instead of against them, should be used. They should be strong so that they will last, and give you also the feeling that you can climb them safely, even with a basket full of apples. Avoid ladders that lean up against a tree because they not only break the limbs but the bark. Wherever the bark is broken, an opening is made where some of the many diseases now prevalent will have a chance to enter. We have tried types of ladders advertised in The Canadian Horticulturist, and found them quite satisfactory.

SORTING AND GRADING

Sorting and grading the apples should be done with care, all apples being handled one at a time. We used to sort our apples in the orchard and continue to do so in the case of apples going into barrels. But with such varieties as Duchess, Wealthy, McIntosh and Fameuse we think it better to do the sorting and grading in the packing house. We shall mainly dwell here in our remarks upon the grading of apples that are for box packing, as our best tender varieties are all going to be packed in boxes in the near future. It seems really a pity to put up fancy and number one Fameuse and McIntosh apples in barrels, now that we have begun to take to the box. Of course we are speaking only of the best grades as we never put on the market our culls and number three apples. These invariably go to our cider mill or to our canning plant. We still continue to put up in barrels the number two grade.

We think it best to sort the apples before they go to the packing table, as we are not yet trained enough to do good sorting and packing from the same pile of apples on a table. It is certain that it is less difficult for our young students to pack the apples in boxes after they are carefully graded beforehand. Also it is presumed that a sorter, having only one thing to perform, might be able to do it better than a packer will, having to pack the apples at the same time.

After a basket is full the picker empties very carefully the contents in an orchard box, which is then put in the express wagon, and after a load is ready the apples are brought to the packing house. Here we should insist upon one point. Every grower intending to pack apples in boxes, should be provided with orchard boxes. The only way to deliver clean boxes to our customers is to use orchard boxes. There is nothing that spoils the reputation of a grower more than a bad appearance of his barrels or boxes. The orchard box is made a little larger than the ordinary box and has cleats on the top so that the apples may not be bruised when the boxes are piled on top of one another. These boxes will last long if well cared for.

Our sorting table is quite a long one, so that apples may be put on the entire length without piling them up too high upon the canvas covering, thus avoiding bruises.

THE PACKING TABLE

Our packing tables can accommodate two men at a time. The boxes are inclined towards the packer in such a way that he picks up each apple from the table with the right hand and grasps the wrapping paper with the other hand.

We sort the apples in two grades only, fancy and number one ordinary; it will not pay to pack more than two grades, as every time that an extra grade is

The Packing Table, Paper Holder, Basket and Box Press as Used at La Trappe

In a note Father Leopold adds: "The latter was bought through an advertisement in The Canadian Horticulturist."

introduced it adds about five cents extra per box to the cost of packing. Only perfect fruit goes in the fancy grade. Number one grade includes only fruit that is a little below fancy, and not perfect. I believe it always pays to keep above the standards set by the Fruit Marks Act; then we never get in trouble with our customers, and our name holds good everywhere.

As to the size of the apples, we first sort them with grading boards which have holes in accordance with the grade size decided upon at the last Dominion Fruit Conference held at Ottawa. McIntosh generally are graded to one hundred and twenty-five, one hundred and thirty-eight and one hundred and fifty apples in a box, and are all a 2-3 diagonal pack. Fameuse may range from one hundred and sixty-three, one hundred and seventy-five and one hundred and eighty-eight apples in a box, all 2-3 packs also. These packs all contain five rows of apples and only vary in number of apples lengthwise.

We believe that every package of fruit should be lined with paper. We feel certain that when apples are wrapped they carry better, bruise less, arrive in better condition and keep longer than unwrapped fruit. The packing paper consists of a layer of paper of a spongy nature (don't get glazed or semi-glazed paper) for lining, and a soft tough paper like the "Duplex," for wrapping. We find ten by ten to suit us very well, though eight by eight would do for the Fameuse. Part of the wrapping paper is stamped with our College motto in red color. This paper is used on the top layer at least, so that when a package is opened and displayed, everyone may know where the box came from, even though the label on the end is invisible.

Don't buy cheap paper. One never saves anything by doing so. Cheap paper will break or tear when wrapping, so that the time lost, let alone the appearance of the pack, will more than offset the difference in price of first and second class material. A tray for holding the wrapping paper is found very convenient. This tray is made so that it can be fixed on the side of the packing box. We avoid in mostly all cases using the staight pack and find that all our Duchess, Wealthy, McIntosh and Fameuse can be accommodated with the diagonal 2-3 pack.

PACKING HOUSE ESSENTIAL

A packing house is essential when a fruit grower wants to put up extra fine fruit. It should be well lighted, of convenient size, and well arranged for carrying on this important part of the fruit problem. In order to put up apples in the most perfect condition it is necessary after picking to get them quickly into a cool place, where they will be protected from the sun. When the grower packs in the orchard the apples absorb heat from the sun. The less heat there is in an apple when it is shipped the better it will carry and the longer will it keep in cold storage.

Not only must we have good packing houses to protect the apples from the sun, but we must do our packing as soon after picking as possible. There is nothing equally responsible for damages to the crop as allowing the apples to remain unpacked from one to three weeks. The sooner the apples are packed after they are picked the better their condition will be when they are in the hands of the consumer. What we all should try to do is to give satisfaction to the consumer.

Let us hope that the fruit-growers all over our province may live up to the best in modern orchard management. They will be well repaid for their trouble in many ways.

Packing Apples in Barrels

A. G. Turney, Provincial Horticulturist, Fredericton, N.B.

A LARGE portion of the New Brunswick apple crop is marketed in open barrels. The fruit is picked into baskets, emptied loosely into barrels in the orchard, stored in bins in the cellar and afterwards placed on the local market, a few barrels at a time, unheaded. However, a considerable amount of early and late fall apples and some winter varieties are exported or shipped such distances within the province as to render good tight packing absolutely essential.

The minimum size of a standard barrel containing ninety-six quarts, and made from twenty-eight inch staves, commonly known as the Nova Scotia barrel, is used here. The dimensions of such a barrel as given in the Inspection and Sales Act, are as follows: Between heads, twenty-six and a half inches inside measurement; head diameter, seventeen inches inside measurement; middle diameter, eighteen and a half inches inside measurement.

The hoops are made of birch or alder and are often split. The split hoops while lacking in neatness are cheaper and usually stronger. To prepare the barrel for filling, we drive the quarter hoops down firmly and securely nail the face end. This is done by driving nails obliquely through the upper hoop, the end of the stave, and into each corner of each piece of the head. An additional nail or sometimes two should be driven into the side pieces. In driving these nails we start them as low down on the end hoop as is possible but do not let them come through the head. Use five penny nails for this purpose.

Head liners are hardly used here at all, although they should be more gener-

Picking Gravenstein Apples in the Orchard of Joseph Kinsman, Lakeville, Kings County, N.S.

New Brunswick Apples as shown at the Provincial Horticultural Exhibition.

ally used. They make the barrel safer and stronger and are really essential for export trade. Two liners over the ends of the pieces forming the head should be used, driving four to six nails through each one and clinching them on the outside of the barrel. We secure the quarter hoops by driving two nails, one on each side of the barrel, in a slanting direction, clinching them on the inside. If the hoops are split we drive an extra nail through the lock or lap of the hoop. We use three-penny nails for securing these hoops and for liners.

We place the barrel on a good stout plank and put in one of the heavy paper heads commonly used for this purpose. This gives a neater appearance to the barrel when opened and keeps the face apples cleaner and brighter. The face layer should be representative, in size, color and freedom from blemish, of the entire package. If it fails to do this then the pack is dishonest. Dishonest packing has thrown hundreds of thousands of apple trees into neglect and decay. Why? Because it doesn't pay. With a stemmer we cut off the stems of all the apples for the face layer and place them in position, stem end down, in a series of circles starting at the outside and working to the centre. The layer should be firm and uniform, but a noticeably smaller or larger apple should not be used just because it will make the layer tight.

The barrel is now faced and after carefully placing apples so as to cover the open spaces in the face layer, it is filled by emptying the apples in very carefully from the basket. As each basket or two baskets of apples are placed in the barrel, the barrel is grasped at the top and raised first one edge and then the other, see-saw fashion, about two inches from the plank on which it is setting, being dropped back each time sharply but not loosely or violently. A barrel should be racked at least three or four times during the filling.

When filled to about two inches from the chime the barrel is ready for tailing and is prepared for this by using a barrel "follower," which consists of round piece of plank smaller than the head of a barrel so that it will fit nicely inside and padded on the underside with felt. This is placed on the apples and held firmly when giving the last rack to the barrel. It leaves a fairly even surface on which to arrange the top rows, or "tail up" as it is commonly spoken of.

Tailing is the most difficult part in the packing of a barrel of apples and is often only half done or omitted to save time. The object is to arrange the last two rows of apples as firmly as possible and in such a way that when the head is placed on it will touch every apple, evenly distributing the pressure down through the barrel. The apples of this last layer should be placed stem end up, the stems being shortened as in the face layer, and should bring the surface of the fruit level with or slightly above the top of the stave, depending considerably on the variety to be packed and the distance to be shipped.

Tender skinned varieties such as the McIntosh Red and Northern Spy should not be filled more than level with the top of the barrel, and perhaps even less for comparatively local markets. On the other hand solid, tough skinned varieties, like the Ben Davis and Golden Russett, should be tailed higher, as they need more pressure to prevent slacking in export shipping, probably about an inch above the top of barrel for export and less for local markets.

In heading we remove the upper hoop of the barrel and loosen the next one; lay the head in position, catch the screw press under the barrel and arrange the circular press head in position. Everything is now ready for applying the pressure, except that the top hoop is slipped on loosely so that after the head has been pressed down into the chime, the hoop may be driven into place without removing the press, first driving the second hoop down into place. The head is nailed in the same manner as in the face end, using liners. The face is stencilled and the barrel laid on its side.

Gathering the Apple Crop, Mr. Sterling's Orchard, Kelowna, B.C.
—Photo by G. H. E. Hudson.

A Quebec Province Rose Garden

F. E. Buck, B.S.A., Experimental Farm, Ottawa

In this autumn season, one of the sources of satisfaction in growing roses is that many of the modern varieties have a second, and one might almost say a continuous season of bloom. In fact there is a little garden, about a quarter of an acre in extent, not two miles from the Parliament Buildings of the Dominion, where they blossom in a riot of variety and profusion.

Mr. MacGrady in His Garden.—This G a General View of the Garden.

This garden is at Gatineau Point, a little Quebec village on the river almost opposite the picturesque part of Ottawa known as Rockcliffe. It is the creation and almost constant resort of a Mr. MacGrady. Unpretentious in many ways, being wedged in between small houses and rough boundary fences, it impresses one for that very reason with the potentialities for rose growing existing in a piece of land even in a climate as cold as that of Ottawa.

It is first of all a rose garden, because this flower, which is responsible for the stirring of more gardening ambitions than any other flower, holds premier place. Roses with Mr. MacGrady are not secondary, his garden was made for them and the soil is ideal. For years he has had good success with all classes of this flower. His system of growing does not differ materially from other systems Neither has he won success by any secret or strange processes of culture. Wise consideration of the needs of the plants and a measure of patient loving care brings him a reward of thousands of beautiful roses in both the June and September seasons of bloom.

In regard to the beauty of the autumn bloom, Mr. MacGrady says that he finds "the quality of the flowers produced later in the season, and especially in autumn, far surpasses in size, form and color those that are given in June. These traits are particularly conspicuous in the dark crimson varieties, and a Pierre Notting of June looks like a poor relation of the regal and magnificent Pierre Notting of September."

It might be remarked here by way of parenthesis that the English growers are very interested in having good beds of autumn blooming varieties. In the trial experiments with roses at the Ottawa Central Experimental Farm the present indications are that in future lists many of the recommended roses will be those giving a good amount of bloom in the autumn. One reason for this is that sometimes our season in June is so hot that the roses are past all too soon.

Altogether Mr. MacGrady has about four hundred rose bushes. Many of these are of recent fame, since each year a consignment of the newer introductions is imported from a firm located in the Duchy of Luxembourg, in which are included those brought out by English, French, German and Irish rose growers.

SOME GOOD VARIETIES

The following list of roses was prepared by Mr. MacGrady, by request, as being roses which he has found the best of the many varieties which he has cultivated:

White—Frau Karl Druschki, Merveille de Lyon; white with pink tins—Capt. Christy, Clio; light rose—Pride of Waltham, Mde. Gabrielle Luizet, Baroness Rothschild; bright rose—Eugenie Fremy, Capt. Hayward, Magna Charta; crimson—Gustave Piganeau, Mde. Victor Verdier, Eugene Furst; dark crimson—

A View of the Garden from Near the Arch Showing Roses in Every Direction

A Rose Border in the Garden of Mr. James Gadsby, Hamilton, Ont.

Souvenir de Victor Verdier, Boncenne, Princesse de Bearn; climbers—Crimson Rambler (red); Mrs. F. W. Flight, (pink), Baltimore Belle (white), Rubin (red); yellow—Persian Yellow; moss—Gracilis, Cristata, Crimson Globe, White Bath; Rugosa—Conrad F. Meyer, Mde. Chas. Worth, Nova Zembla, Souvenir l'exposition de Bordeau.

He also speaks highly of Pernet Ducher's (the great French Rose Hybridist) new introductions. Some of the most remarkable are: Soleil d'Angers with its conspicuous yellow centre and carmine border; Rayon d'Or, coppery yellow ground striped claret red; Soleil d'Or with its almost undescribable mingling of pleasing shades of rose and amber on yellow ground, and others.

NOTES ON CULTURE

Mr. MacGrady states that except in a winter when the snowfall is light he does not find much difficulty in protecting the plants. At the end of the season they are laid down as close to the ground as possible without breaking the stems, and are tied to low stakes to prevent the weight of the snow either crushing or breaking the stems. Earth is drawn up around the base of the plants, forming a small cone-shaped hillock. The plants are then covered with thick wrapping paper and around this odds and ends of boards are placed to keep the covering in position.

As the rose has enemies of several types, Mr. MacGrady has tried a mixture which he thinks is fairly effectual against insects and fungous troubles. It is made by him as follows: "Steep one-half pound of cheap tobacco in one pail of water. Then add to this half a pound of powdered hellebore, a few teaspoonfuls of Paris green and about half an ounce of sulphide of potassium. The sulphide of potassium is added not to ward off insect attacks but to guard against mildew and leaf-spot, fungous diseases to which some varieties are very subject. The tobacco extract kills the plant lice, the Paris green and hellebore poison the eating insects and slugs." He finds, like most growers, that the sickly plants are generally those which are attacked by insects and fungous diseases.

RENOVATING OLD PLANTS

Mr. MacGrady has had good success in renovating old rose plants and it may be well to pass on the idea. Old plants which, from any cause, have become feeble in growth and unproductive, may be made to take on a new lease of life by taking them up early in the spring, when they are dormant, pruning the roots of all old dead wood, cutting back slightly the green wood and then replanting in a new position. After such treatment they will in most cases form fine satisfactory plants. This same method is also practiced in the autumn we believe with very good success.

To again quote Mr. MacGrady: "My ambition has been to have an old-fashioned garden in contra distinction to the more formal types." Therefore, in addition to his garden being a rose garden it is a galaxy of color during many seasons owing to the fine clumps of well known flowers scattered here and there both among the roses and bordering the walks. Foxgloves, Canterbury Bells, Larkspurs, Sweet Williams, Lychnis, Oriental Poppies, Phloxes, Hollyhocks, Tulips, Pansies, Primulas, Hyacinths, and many others, thrive in ideal conditions and brighten and cheer with their blaze of colors.

PAEONIES STRONG FAVORITES

There is one flower which has not yet been mentioned, but which in this garden is prized next to the rose. This is the Pæony. The Pæonies, together with the early roses and several other flowers of that season, make the most gorgeous show of the year. About three hundred Pæonies are grown, many of which are fine named varieties. In one year fifty of these plants were bought from Dessert, the noted Pæony grower of France.

In addition to imported plants, Mr. MacGrady has about thirty seedling plants of his own raising. These were produced from seed sown in the autumn, and which germinated the following spring. But it was three or four years before any of the plants reached the blooming stage. Three very noticeable ones bloomed this year for the first time, one fine satiny pink, another a good red, and the third a pretty single.

Mr. MacGrady receives quite a number of visitors in his little secluded garden and he takes a pardonable pride in showing his much beloved flowers.

House Plants for Fall and Winter

P. D. Powe

Although we will soon have to give up our outdoor favorites we can still resort to the house window. A good south window is best, but where not obtainable an east window is next choice. In these fix up two layers of shelves upon which to place your plants.

The plants which will be found to give greatest satisfaction to the house window gardener are the geraniums. Young plants from September cuttings bloom best. Fuchsias, Mysatiens, Oxalis, Primrose and Abutalions are easily grown and give good results. Cyclamen, with its marbled foliage and unique bloom, makes a very beautiful plant for the table or window. Palms and rubbers are also fine for the house. A few pots of bulbs should be grown, as nothing can be more beautiful, and they require but little room.

BULBS FOR THE HOUSE

The double and single Tulips, Hyacinths, Freesias and Narcissis, make a grand display. Obtain your bulbs as early in September as possible, getting as much of a variety as you can. Take some four inch pots, place drainage in bottom and fill up with good soil. Take your bulb and cover till only the very tip is showing. Water well and place in a damp cellar or under heavy shade, and cover with litter for eight weeks. Then bring them to the window, and the beautiful bloom will soon make you feel repaid for your labor. If a prolonged period of bloom is desired remove a lot to the window each week.

Preparations for Winter and Spring Flowers

Henry Gibson, Staatsburg

Quite naturally September is looked upon as the end of the gardening season. But to those who would have those early blooms next spring, it is just the beginning.

The peony, which has very truthfully been described as the "Queen of spring flowers," should be planted this month. It is of easy culture, and enjoys that immunity from insect pests and disease that few other plants possess. An open border is the most suitable place to plant peonies, though they will thrive almost equally well in partial shade.

Spade the ground to the depth of two feet and incorporate a good dressing of thoroughly decayed barnyard manure. If the ground can be prepared some time previous to planting it would be a decided advantage, as there would be less likelihood of the manure coming in contact with the roots, which undoubtedly is the cause of many failures.

SETTING THE PLANTS

Set the roots just deep enough to allow four inches of soil over the crowns, and place them four feet apart in the rows. Quite frequently it is found that too deep planting is a cause of failures that were attributed to uncongenial soil and weather conditions. The roots exhaust their food supply before the young growths reach the surface of the soil.

As the peony season lasts a month at the most it is well to give some attention to the selection of varieties, so as to have a fair range of colors. Don't be misled by the extravagant claims made for some of the novelties, which are high in price, and very often unsatisfactory. Many of the old varieties are still unsurpassed by any of the recent introductions, and for the amateur are likely to prove the most satisfactory. The following is a list of varieties that have proved all that is claimed for them:

White—Festiva Maxima, Couronne d'Or, Duchess de Nemours, Marie Lemoine, Octavie Demay and Marie Jacquin.

Pink and white—Umbellata Rosea, Golden Harvest, Madame Coste, Madame de Vatry, Princess Beatrice and Beaute Francaise.

Red—Augustin de Howe, Louis van Houte, Henry Demay, Dr. Caillot, Felix Crouste and De Candolle.

Red, various shades—Meissonier, Monsieure Marchel de McMahon, Madame Burquet, Rubia Superba and Emperor Nicholas.

Deep pink—Madame Ducal, Livingstone, General Bertrand, Modeste Guerin, Alexander Dumas, and Modele de Perfection.

PURCHASE BULBS NOW

Now is the time to purchase your stock of bulbs which are to furnish you with flowers during the winter indoors, and out in the beds and borders in the early spring. Don't buy cheap bulbs; they are dear at any price. You will feel amply repaid for any extra outlay by the increased quality and substance of your flowers compared with the poor, weak specimens produced from cheap bulbs.

One of the greatest mistakes the amateur makes in purchasing bulbs is that he wants too many varieties. If you only want a few dozen bulbs don't get as many varieties as you would if you were getting a few hundred.

Of all spring flowering bulbs, tulips are perhaps the most popular. Their brilliancy of colour, beauty of form, and gorgeous shades render them the most effective of all bulbous plants for bedding and planting in groups or borders. For pot culture and forcing for winter bloom in the window garden there are many desirable varieties.

Tulips should not be planted too soon out of doors as they are liable to get caught by late spring frosts. Wait untill the early fall frosts have cut down your bedding plants, and then set them out. Plant the bulbs five or six inches apart, each way, and six inches deep. In the meantime if you have received your bulbs, spread them out on a dry, cool, cellar floor, where there is a free circulation of air. They will then keep in first class condition until you can plant them.

DWARF VARIETIES FOR POT CULTURE

Duc Van Thol tulips are of dwarf habit, growing only about six inches high, and are the best for pot culture. Five or six bulbs to a six inch pot will be enough. Plant them deep enough so as to allow the top of the bulb to come on a level with the soil, which when firmly pressed down should be at least half an inch below the rim of the pot. Give them a good watering and set them away in a cool place, covering them with about five inches of sand or ashes.

Dutch hyacinths are indispensable where a variety of bloom is required. They are not only suitable for pot culture and planting in the open ground, but they are admirably adapted for growing in glasses. For pot culture select heavy bulbs, and plant as early as possible, using a four inch pot for a single bulb, or three of one variety may be put into a six inch pot. Plant and set away as directed for tulips.

For planting in the open ground these subjects like a deeply cultivated soil. The bulbs should be planted as evenly as possible, about six inches deep and from five to six inches apart, setting each bulb in a handful of sand to ensure drainage.

BULB CULTURE IN GLASSES

Bulb culture in glasses is not practiced nearly so much as it should be. It is one of the most fascinating phases of indoor gardening. A glass with a wide top is required so that the bulb can be rested on it without falling into the water. Glasses made for this purpose can be purchased from almost any florist for a nominal sum. Single hyacinths

An Avenue of American Lindens
Canadian Cities Need More Streets of this Character.

do best in glasses as they produce a much finer spike. Place the bulb in the glass which should be filled with water so that it touches the bottom of the bulb. Put away in a cool place or on a shelf in a dark part of the cellar for six or seven weeks, changing the water every two weeks.

At the end of that time remove them to the light in a cool room with an even temperature. They will produce spikes of bloom that will keep fresh for a surprising length of time. A piece of charcoal placed in the water absorbs any obnoxious gases that may arise and helps to keep the water sweet.

Preparing and Packing Vegetables for Market

By P. D. Powe, Cainsville Ont.

WE Canadians are just ten years behind the times in regard to the marketing of our goods. Very few firms in Ontario use the up-to-the-minute methods employed in the United States and European countries. Having made a careful study of their methods, I will describe those that will have the most effect, and bear more directly on our conditions.

I would advise the reader somewhat as did the French cook, "You will first procure your rabbit before cooking it." I would say grow your vegetables in such a manner as to produce the best on the market. Not only are such vegetables far more saleable, but the quantity will appear larger if carefully sorted and packed, thereby increasing the returns.

All root vegetables should be sorted, washed, topped and tied in neat bunches. Be very careful in grading, discarding all small mishapen ones (these we sell to cheap boarding houses.) Washing must be carefully done or the effect is spoilt. This may be done thoroughly with a spray having a good pressure. Potatoes look far better washed, though they will not keep long.

CAREFUL GRADING NECESSARY

All other roots should be washed and sorted both summer and winter, and carefully graded to size. Cabbage should be graded and all yellow and insect eaten leaves cut away. Never pick beans when the dew or wet is on them, or they will rust and be spoilt for sale. They sell best packed in boxes or baskets.

I know one dealer who keeps twenty boys employed sorting the fruit and vegetables he buys. In talking to him he said he made from fifty to one hundred per cent. profit by this work, owing to poor packing on the part of the grower. Why should you not make this profit yourself?

If you would have success these days you must advertise. Every box, basket and bag should bear your name and slogan printed in plain type so that he who runs may read. Your business will soon show the effect of such a course.

THE HOME HAMPER

The home hamper is truly a Yankee dodge and one that does credit to the originators. To those who have not followed the idea, the following may be of interest:

Procure to start with, a hundred or so card board boxes, such as florists use for large designs. These are cheap and neat in appearance and will do until you get well started. You will then want some neat, light, wooden boxes, such as drapers use. Your name will be printed on the same and be a good advertisement. Use plain lettering, as it looks neater for this work.

The prices obtained vary from one to three dollars each. The vegetables are picked in the cool of morning, so that they are fresh. The hampers are in demand by all the select trade in every large town or city. In the early season, of course, the variety is limited, but as the season progresses we supply as large a variety as possible. In buying the hampers the housewife obtains a selection of all the seasonable vegetables without the trouble of going to market. At the same time she gets the best and earliest vegetables that are growing. The size of the hamper depends of course upon the family of the patron. As the price goes up with the size, one has no kick coming.

FILLING THE HAMPER

The filling of the hampers is one of the chief matters of importance. Put in two to three bunches of asparagus, beans of various kinds (sown at intervals of ten days to extend the season), beets (planted every three weeks) made into bunches of from six to eight, Brussels sprouts, a strawberry box full, to a hamper, cabbage, all varieties, cauliflower, spring, summer and fall planted, (leave the leaves one inch above the head and pack so as to avoid bruising as they are easily discolored). Carrots are both ornamental and useful. Celery is indispensable. Sweet corn is a favorite with all. A bunch of herbs of all kinds finds favor with the cook. Parsley is highly prized, as are also early potatoes as soon as they are the size of a large marble. Tomatoes, when smooth, nicely colored and without blemish, find favor the year round. They may be had from the garden from July to December if one understands growing them. Last year our out door grown tomatoes lasted until Christmas. Each hamper contains berries of all kinds in season (from one to two boxes), and a bunch of flowers once a week. We also supply a quart or two of cherries, plums, peaches, pears, or early apples, while in our best hampers we place a two quart basket lined with fancy paper and containing a couple of rosy apples, two peaches, two pears, a couple of bunches of grapes or some other choice fruit.

One thing about the hamper is the show it makes. I know of nothing that will give a better appearance and do it cheaper than a few rolls of different colored crepe paper.

Methods of Blanching Celery

Can you give me some up-to-date information on the blanching of celery? I have tried blanching with earth, but this method caused the leaves to rust. I have been advised to draw the stalks of single plants together with strings and then wrap with brown paper. If there is any better method would you advise me of the same? I have only seventy plants, and could therefore follow a method that might be unprofitable on a large scale.—H. H. W.

The methods employed in blanching celery depend largely on whether the variety grown matures early or late. In blanching early varieties the use of soil is apt to rust the plants. This is probably the reason for the trouble that you have experienced.

When grown on a large scale the blanching of early varieties is accomplished by the use of boards. For your purpose the method that you speak of (tying paper around the stems) would be just as convenient, as the plants need to be grown in long rows to make the use of boards advantageous.

The best method for blanching celery on a small scale is by the use of ordinary unglazed drain tile of about four inches inside diameter. The stalks are first loosely tied together with light twine and a few of the outside leaves removed. The tile is then slipped down over the plant. The leaves spread out over the top of the tile and exclude the light. When not in use the tile can be stored away and thus be used from year to year.

For the blanching of late varieties the soil method is usually conceded to give the best flavor. Good late varieties will not rust when banked with soil. Care should be taken to prevent soil from getting into the heart of the plant as it causes decay.

When celery is to be stored over winter it will keep better if not blanched too much. It can be safely stored in a cool cellar if some of the roots are left on the plants and covered with moist sand.

In digging the crop in the autumn, it is an excellent plan to save the potatoes from the very best hills to be used for planting in the following season.—Prof C. A. Zavitz, O.A.C., Guelph, Ont.

A Sample Yield of Onions in the Famous Leamington, (Ont.,) District.

Rotation of Vegetable Garden Crops

H. F. East, North Toronto, Ont.

THIS is a subject worthy of the attention of those who aim to attain the largest possible results and the highest possible quality with every kind of vegetable crop, for it concerns the natural relations of the plant and the soil as to their several chemical constituents. The principle may be illustrated by considering the demands upon the soil of two of the most common vegetable garden crops.

We submit a cabbage to the destructive agency of fire and analyse the ashes that remain. We shall find in them, in round numbers, eight per cent. of sulphuric acid, sixteen per cent. of phosphoric acid, four per cent. of soda, forty-eight per cent. of potash, and fifteen per cent. of lime. It is evident that we cannot expect to grow a cabbage on a soil that is destitute of these ingredients, to say nothing of others. If we submit a potato tuber to a similar process the ashes will be found to contain fifty-nine per cent. of potash, two per cent. soda, six per cent. lime.

Now the lesson for the cultivator is that to prepare a soil for cabbage, it is of the utmost importance to employ a manure containing sulphates, phosphates and potash salts in considerable quantity. As for lime, that can be supplied separately, but the cabbage must have it. On the other hand to prepare a soil for potatoes we must strongly charge it with salts of potash and phosphates. But it need not be highly charged with soda and lime for we find but a small proportion of these elements in the potato.

There are soils so naturally rich in fertilizing constituents that they may be tilled for years without the aid of manures, and still yield an abundant return. But these soils are exceptional. Those that constantly need manuring are the rule. In almost every soil, whether strong clay, loam, poor sand or chalk, there are to be found all the minerals required by plants. Indeed, if there were not, we should see no herbage on out of the way places; for instance at the top of limestone rocks. Usually, however, a considerable portion of those mineral constituents on which plants feed are in an insoluble form, and are slowly made available as the rain, the dew, and sunshine operate upon them.

As the rock slowly yields up its phosphates, alkalies and solutions of silica to the wild vegetation that clings to it, so the cultivated field (which is but rock in a state of decay) yields more readily its constituents for the service of plants. Because it is the practice of the cultivator to stir the soil and continually expose fresh surfaces to the transforming power of the atmosphere, it has been said that the air we breathe is a powerful manure. So it is, but not in the sense that is applicable to stable manure or guano. The air may, and does, afford to plants much of their food. Every fresh exposure of the soil to the air, and especially to frost and snow, is as the opening of a new mine of fertilizers for the service of those plants upon which man depends for his subsistence.

SCIENTIFIC PRINCIPLES APPLIED

The practical application of these considerations is an extremely simple matter in the first instance, but it may become complicated if followed far enough. Here we can only touch the surface of the subject. Suppose that we grow cabbage or cauliflower on the same plot of ground, one crop following the other for a long series of years, and never refresh the soil with a scrap of manure. It must be evident that we shall some day experience a crop failure because of the exhaustion of the soil.

But if this soil were allowed to lie fallow for some time it would again produce a crop of cabbage, owing to the liberation from the unavailable state of mineral matters which when the crops were failing were not liberated fast enough. But as this method necessitates keeping the ground idle for some time, it is obviously an unprofitable mode of procedure and tends to still further exhaust the soil. Whether a soil can be brought to a stage of utter exhaustion is at present unknown. Instead, however, of following an exhaustive practice, we enrich the soil with manure, and change the crops on the same plot so that when one crop has largely taxed it for one class of minerals a different crop will tax it for another class.

Let us consider the arrangement of a rotation. Beets contain very little sulphur, but both turnips and beets are strongly charged with potash and soda (common salt.) If we take a piece of ground on which is cabbage (which is low in soda content) and wish to avoid the failure that may follow the continual growing of this crop, we may expect to do well by giving the ground a dressing of common salt and alkalies and then crop it with beets.

DEEP VS. SHALLOW FEEDERS

Crops differ in their mode of seeking nourishment. For instance if we grow cabbage and other surface-rooting crops until the soil begins to fail, a good crop of parsnips or carrots might be obtained from it for the simple reason that these send their roots down to a stratum that the cabbage never reached. Parsnips can thus thrive on land that has been badly tilled for years because the root pushes down to a mine that has been but little worked.

It is quite proper to say that good land, well tilled and abundantly manured cannot be soon exhausted. But even in this case a rotation of crops is advisable. A good rotation will include both chemical and mechanical differences. We grow deep feeders after shallow feeders, and potash-loving plants, say, after those that draw more heavily on other fertilizing ingredients.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

UNITED STATES REPRESENTATIVES
STOCKWELL'S SPECIAL AGENCY
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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is know as The Canadian Hortculturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912....	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912....	11,144
June, 1912.....	10,946		
July, 1912.....	10,936		132,556

Avernge each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912, 11,...

August, 1913 12,360

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST.
PETERBORO.

EDITORIAL

POWER FOR PRE-COOLING

A factor that in the near future is going to have a large bearing on the development of wider markets for Canadian fruit is the practice of pre-cooling before shipment. Most particularly does this apply to the more perishable classes of fruits such as peaches, plums, grapes and small fruits. When fruit is placed in the ordinary refrigerator cars several days elapse before the fruit becomes properly cooled. When pre-cooled the heat is removed from the fruit in a few hours, thus increasing the distance for safe shipment and extending the market.

The greatest difficulty that must be met is the question of procuring cheap power. At the present prices at which power can be obtained or produced, pre-cooling proves economical on a large scale only.

In California, from which thousands of carloads of citrous fruits are shipped annually, pre-cooling plants with capacities as high as twenty to thirty cars daily have been established. When applied on such a large scale as this the economical use of power is assured.

This power question is "the thorn in the flesh." Growers in the Summerland district of British Columbia are this season working out a solution of the problem. The Provincial Government, the Canadian Pacific Railway and the municipality are all cooperating to make the venture a success. In this instance the fruit is to be pre-cooled in a portion of the warehouse, the cost of fitting being met by the department. The Canadian Pacific Railway will provide free ice for one season, the part played by the municipality being to supply the electric power gratis.

The carrying out of this scheme will be followed with interest by Canadian fruit growers in general. The establishment of pre-cooling plants in the Niagara district has often been suggested and is a development that is bound to come within the next few years. Hydro-Electric may furnish the solution of the power problem of this district.

MARKETING VEGETABLES

To grow good vegetables is one thing; to market them to advantage is another. Not a few growers have reaped but a scanty reward from a whole season's work, because they lacked a knowledge of the essentials of good marketing practice.

Any ordinary grower can get the ordinary price. In the endeavor to obtain a fancy or even a fair price on a glutted market, the most necessary essential is for the producer to study the consumer's needs. He who originates a method of marketing which places his produce in the hands of the consumer in a more attractive form than that of his competitors is the man who wins out. In this respect our neighbors across the line seem to be leading the way. The "Home Hamper" method of marketing vegetables described in an article in this issue, shows one example of what can be done to build up a trade in a high class product.

But this is only one of many ways in which the progressive grower, who is courageous enough to break away from time-worn methods and blaze a new trail, can find an outlet for his produce at remunerative figures. Instead of sticking to the style of package that has become common in his neighborhood he can originate one that would catch better the fancy of the buying public. Then, too, he can provide his packages with an appealing label that will also serve as a trade mark. The trade will become accustomed to his brand and will call for it. Many growers make a great mistake just in this respect. They place both the poor grade and the h[illegible] grade article in the same style of package. The package therefore does not become a criterion of the grade.

Grading is most important. And the standard for each grade should be rigidly maintained in the face of all price fluctuations. Oftentimes greater returns will be realized by marketing only the higher grades and discarding the rest, than by offering the entire lot as ordinary stock.

The development of marketing methods offers wonderful possibilities for the grower to exert his ingenuity. Only the fringe of this phase of the vegetable growing industry has yet been touched. Producers will do well to give this matter serious attention.

CENTRALIZATION JUSTIFIED

The Central Selling Agency organized in British Columbia this season is already proving its worth. The organization is to handle an order for thirty thousand boxes of apples to be shipped to Australia. The benefits of cooperation on a large scale are at once apparent in a case such as this. Only a large organization could handle an order of this size.

The securing of this order indicates that Australia may become an extensive purchaser of British Columbia fruit. This would relieve to some extent the situation in the west through the withdrawal of considerable quantities of fruit from that market. Cooperation on a large scale is all that can bring this about. The relief it would effect is much needed as this year Washington State growers are giving both British Columbia and eastern growers a harder run than ever on the prairie markets. Freight reductions on the railroads controlled by J. J. Hill are enabling them to compete with us to greater advantage than ever before.

The United Fruit Companies of Nova Scotia is proving the salvation of the apple growers in that province. For example, steamers are chartered outright with the result that the traffic congestions that were once so annoying are largely a thing of the past. With such examples of the benefits of centralization before us it is not too much to expect splendid results from the recently organized Central Selling Agency for Ontario.

The number of complaints emanating from fruit shippers and commission men indicates that the employees of express companies are far too careless in the handling of fruit shipments. If the companies are not able to impress upon their employees the fact that they are responsible for the safe delivery of fruit handled by them, then it is time that outside influences were brought to bear on the matter. If an inspector or inspectors could be appointed to investigate the extent of the loss that fruit shippers experience in the same manner that Mr. McIntosh has handled the question of freight rates, the amount of damage reported would soon convince the Government of the need of remedial measures. Some action should be taken without delay. The express companies have managed affairs in their own way too long.

There are two organizations in Canada directly connected with the development of the horticultural interests of the Dominion, as distinct from the fruit growing industry. These are The Canadian Horticultural Association and The Ontario Horticultural Association. The former is composed of wholesale flower growers, retail florists, and professional gardeners, and deals almost exclusively with the professional side of floriculture. The latter represents the amateur interests. The sixteenth annual convention of The Canadian Horticultural Association took place last month in Peterboro. The papers presented were of a high order of merit, particularly that by Park Commissioner C. E. Chambers, of Toronto, which dealt with Parks and Boulevards. We are pleased to notice that since the convention it has been published in full by a number of local dailies. Separated as its members are by the great distances which prevail in Canada, this Association is accomplishing a valuable work in the face of considerable difficulties. It deserves the support of all who are interested in any branch of professional floriculture. By identifying themselves with it, florists and gardeners will advance their own interests as well as those of the other members of their profession.

PUBLISHER'S DESK

This is the season of the year when the minds of progressive fruit growers are occupied with thoughts concerning the marketing of their season's crops. More and more are they striving to see that their goods are placed on the markets, both at home and abroad, in the best possible condition. This is why the Annual Exhibition and Fall Packing Number of The Canadian Horticulturist, issued the first of September each year, is awaited with interest by fruit growers from one end of Canada to the other.

This is our third annual number of this kind. We anticipate that it will meet with the expectations of our readers. The articles are particularly timely and helpful. One of the most important discussions that took place at the Dominion Fruit Conference held last year, pertained to a possible change in the size of the standard apple box. One of the leaders in the discussion was Mr. R. M. Winslow, of British Columbia. At the Dominion Conference final action was deferred until the views of the growers might be more fully ascertained. In the introductory article in this issue, Mr. Winslow has summed up very ably the arguments for and against the two sizes generally advocated. It will be noticed that he favors what might be called the United States as against the Canadian box. As the subject is a timely one, fruit growers are invited to continue the discussion.

In Quebec and Eastern Ontario our fruit growers are awakening to the fact that in the Fameuse and McIntosh Red apples they have two varieties that for dessert purposes are unsurpassed. For all such growers, as well as for growers of other varieties of apples, the article by Rev. Father Leopold contains much that should be instructive and helpful.

In Eastern Canada, at least, the great majority of apple growers are still packing their apples in barrels. The contribution by Mr. A. G. Turney, Provincial Horticulturist for New Brunswick, was secured for their benefit. A glance through the flower and vegetable departments of this issue will show that they also are filled with timely, helpful information. While the handling of the apple crop is always emphasized in this issue, it has been our desire that none of the other departments should be neglected, and in this we trust our readers will see we have been successful.

* * *

Because The Canadian Horticulturist is published only monthly its space is very limited. This makes it absolutely impossible for us to publish as soon as they are received, many of the articles that we accept for publication. In each month's issue we strive to have those articles that are the most timely and seasonable. Thus it frequently happens that an article crowded out of one month's issue may be held over and not used until the corresponding month of the year following. When correspondents do not see their articles published as soon as they expect, they are asked to remember that its non-appearance is not an indication that it is not the editor's intention to publish it.

* * *

The circulation of The Canadian Horticulturist and its companion paper, The Canadian Horticulturist and Beekeeper, continues to increase. It is now greater than ever before in the history of either paper. We are pleased that this is the case because we do not use any methods to force an increase in circulation. Premiums are not given to subscribers to take the paper.. The circulation of both papers is high class and good. This is probably the main reason why The Canadian Horticulturist and The Beekeeper are such valuable advertising mediums.

* * *

This year as usual The Canadian Horticulturist will be represented in the Horticultural Building at the Canadian National Exhibition in Toronto. Readers of this paper are invited to pay us a visit.

Potato Canker Danger

H. T. Gussow, Dominion Botonist, Ottawa

Potato canker should not be allowed to obtain a foothold in Canada. It is a disease that makes slow progress but where once broken out it has defied every known means of control. With the approach of the potato harvest all growers are particularly requested to examine their potatoes for signs of canker. A case of potato canker escaping detection forms a source of future infection.

The appearance of this disease has been well illustrated by the Farmers' Circular, No. 3, obtainable free of charge from the Publication Branch of the Department of Agriculture, Ottawa. On discovery of any signs of potato canker farmers should immediately notify the Dominion Botanist, Experimental Farm, Ottawa, of the outbreak, at the same time submitting specimen, when an inspector will be sent to assist and advise the farmer as regards the treatment to be given.

In accordance with the new regulations if diseased tubers are found no part of the crop can be sold. Before being used for any purpose all tubers, whether sound or unsound, must be boiled, which destroys the disease. No potatoes from an infected field can be used for seed. The land upon which diseased potatoes have been raised is unfit for the production of potatoes for an indefinite number of years.

All potato growers should acquaint themselves with the publications furnished by the Department of Agriculture in referance to this disease.

Niagara Peninsula Crop Outlook

The Niagara Peninsula Fruit Growers' Association reports an increase over last month in the plum and pear prospects, and a slight decrease in grapes. The average set is as follows:

Japan Plums, 58 reports, 79%.
European Plums, 55 reports, 71%.
Early Cling. Peaches, 51 reports, 80%.
Early Free. Peaches, 84 reports, 59%.
Late Peaches, 93 reports, 71%.
Early Pears, 39 reports, 81%.
Bartlett Pears, 63 reports, 80%.
Later Pears, 54 reports, 74%.
Grapes, 83 reports, 72%.
Early and Fall Apples, 46 reports, 56%.
Winter Apples, 57 reports, 45%.
Early Tomatoes, 39 reports, 81%.
Late Tomatoes, 53 reports, 75%.

The raspberry crop was very disappointing. The first early tomatoes were inclined to be small but they are now coming in freely—quality good. On moist, sandy soil, the crop promises well, but on the heavier soils the plants are suffering severely from the excessive drought. Peaches are seemingly not suffering badly as yet from little peach and yellows, but both may develop later. Blight on pears is reported in several cases as being bad, and the pear slug has also done damage.

Grapes have suffered badly in some cases from flea beetle and rose chafer in Pelham, Thorold and Stamford townships, and rot is reported in several vineyards around St. Catharines. Apples are still reported light, and the yield may possibly be even further reduced as many growers have not sprayed their small crop, and codling moth and scab are reported bad in unsprayed orchards. In every case the well sprayed orchards are reported comparatively free from such troubles. Cover crops went in late because of drought.

While so many complain of the lack of rain, it is a debatable question whether the growers who are cultivating, spraying and caring for their orchards as they should be cared for, are not in a better position. There will be no loss from rot and the fruit will carry better than if there were to be a little too much rain.

The peach crop will be large owing to the large number of young orchards coming into bearing. The growers should endeavor to place as many orders as possible and also let their customers know that there will be plenty to supply all demands.

SOCIETY NOTES

St. Catharines

Preparations are under way for the annual fall exhibition of the St. Catharines Horticultural Society. Situated as St. Catharines is in such a splendid fruit producing section this exhibition has become one of the finest flower and fruit shows in Canada. This season no efforts are being spared to make the event the most successful yet. September 11 will be the opening date.

That Ontario can produce apples second to none was proved at the International Apple Shippers' Association which met recently at Cleveland, Ohio. In competition with fruit from Nova Scotia, the New England States, New York, Michigan, Wisconsin and Minnesota, Ontario fruit won the President's Cup, a sweepstake for the entire show. Fifteen winter, five summer and ten fall varieties were shown.

An Essential Point in Good Marketing

F. E. Ellis, B. S. A., Peterboro, Ont.

IT was an interesting group that gathered together in front of the Norfolk county exhibit at the last Horticultural Fair in Toronto; interesting because it represented the two classes concerned, the producers and the consumers. With representatives of these two classes whose interests are so often considered antagonistic, with the fruit all around them, the remarks exchanged are apt to be enlightening. I joined the group.

"Yes, we are getting marketing down to a science in our county," the Norfolk man was saying. "Practically all the growers worth considering have joined our association and we have put the old-time apple buyer out of business. As we progress we will probably go even further towards eliminating the middleman: and that will be of advantage to you as well as to me," he added turning to the City Man who stood at my right. "Cooperation is the whole thing for both of us."

The Norfolk man's enthusiasm when he spoke on cooperation was contagious, but the City Man still looked doubtful. "Don't you think," he suggested, "that you are putting cooperation on a pedestal that is a trifle too high? I don't know much about fruit, but I do know something about marketing and I should say that the very first essential for the consideration of the grower is to produce and pack fruit that will be most satisfactory to the consumer. If you don't please the consumer then your cooperation will be all for nought."

Finding that his audience was interested, the City Man was encouraged to continue. "I can remember," he said, "when fruit and apples were almost synonymous terms. We had to buy apples or go without fruit. You fruit growers have now more competition. Bananas can now be had at very reasonable prices, thanks to the pedlar, at any time of the year. Oranges too have gotten down where they are within the reach of everyone in moderately good circumstances. If apples are not put up to suit us we have bananas and oranges to fall back on."

"But aren't we putting the apples up to suit you?" interposed the Norfolk man.

"No, you are not," was the immediate retort. "I should judge from this show that you have discovered the value of the box pack for displaying your fruit at the fair. You haven't got wise to its value as a market package. You send your commissions abroad to study cooperation. I have never heard of a commission coming to Toronto to study the way people live. Take myself for instance. I, my wife and two children live in a flat of four rooms. Our kitchen is not as big as the ordinary farm pantry. Where could we store a barrel of apples? We can handle a box quite nicely. We can stand it up on end and use it for a seat if stuck for room. The whole tendency of city life nowadays is more and more towards the flat. I'll guarantee that while the majority of people in my city can handle a box of apples nicely there is not one in five that wants a barrel. How do you pack your apples?"

The Norfolk man admitted that the most of them went into barrels.

" When you get your cooperation down so fine that you want to get right next the consumer," remarked the City Man as he turned away, "you will have to change to the box."

It was later in the day that I ran across the Western Man. Here it was even more natural that we should talk fruit as it turned out that he was a large dealer in Saskatoon. Strangely enough in his first remark he struck exactly the same chord as the City Man had done.

"Do you know," he said, "that the fruit growers of British Columbia, Oregon and Washington are ousting the Ontario producer from the prairie markets just because they are not meeting the consumers' demands. I am afraid that your Ontario men don't study the consumer as much as they should."

The Western Man was full of his subject. When I asked him for his ideas on packing and meeting the consumers' demands generally he was right ready to talk.

"Ontario fruit men," said he, "would be wise to adopt a standard box of about sixty or seventy pounds for the apples and hardier pears. For many reasons the box is preferred. The barrels from my standpoint as a dealer are altogether unsatisfactory. They are too heavy for one person to handle and have to be rolled or dropped to the place required.

"Then take the consumer's side of it," the Western Man continued. "Many people prefer to buy two or three kinds of apples or one or two boxes of apples and one box of pears. Or they may be driving many miles into the country with a buggy, in which a box of pears or apples is all they can accommodate. Another and altogether too frequent reason why the box is preferred, is that many have only $2 or $2.50 which they feel they can spare to buy apples. All of these appeal to me as valid reasons why the producer should comply with the requirements of the consumer."

The Western Man had much more to say. He talked of dishonest packing, of unattractive packages and of the shipping of poor varieties. But all of his talk came back to the same point—the demands of the consumer must be considered first. He had spent all of his business life dealing directly with the consumer. He knew what they wanted and realized even more keenly than does the grower, that the most essential point in marketing is to market so as to please the man who must pay the price for the product.

Canadian Peaches on the British Market

J. A. Ruddick, Dairy and Cold Storage Commissioner, Ottawa.

There is a market for a considerable quantity of peaches in Great Britain if they are properly packed and shipped just in the right condition under careful supervision. If that market were the only outlet Ontario peach growers have in addition to the local market it would probably be developed to a considerable extent, but with the Northwest market available, and constantly expanding, the attention of the growers is naturally turned in that direction. I am of the opinion that the returns on the whole from the West will be quite as satisfactory as any from the Old Country.

Mr. C. A. Dobson, who has been the largest shipper of peaches to Great Britain, is turning his attention to the northwest trade, and Mr. Dobson has been as successful in his shipments to the Old Country as any one could hope to be. I have not been able to learn any particulars of the financial returns from Mr. Dobson's shipments, but I presume they have been fairly satisfactory, or he would not have continued to make shipments year after year.

As far as the actual transportation of the peaches is concerned we feel that we have now pretty accurate information.

To thoroughly test the market for Canadian peaches in Great Britain, as described in one of our bulletins, the department made a few trial shipments in 1910 in order to procure accurate data respecting the proper degree of maturity at picking time, the best method of packing, proper temperatures during transportation, etc., especially as the acreage under peaches in Ontario has been increasing rapidly in recent years.

It was decided to make shipments during the weeks ending September 17, 24 and October 1, to London, Liverpool and Glasgow, and one shipment to Bristol on September 15. In all twelve hundred and eighty-four cases were shipped.

All the peaches were closely watched by our cargo inspectors at Montreal. Care was taken to see that the peaches were promptly loaded in the steamers and that proper care was exercised in handling the packages and in stowing them in the chambers. The cases were well dunnaged in the steamers (by dunnage is meant the placing of strips of wood between the tiers of cases, both horizontally and vertically, so as to insure a good circulation of air) and thermographs were placed in each chamber. At London, Liverpool, Glasgow and Bristol our inspectors were also on the alert, and remarkably quick deliveries were made.

All the peaches shipped by the department were disposed of by private sale, excepting the two Liverpool lots of fifty-one and one hundred and two cases, which were sold under the hammer. Cardiff made the highest price, viz., 6s. 6d. ($1.58) per case of 23 'Crawford' peaches, while the highest average price received was $1.45 per case for 72 cases 'Old Mixon,' sold in London. At the same time 78 cases of 'Elbertas' made an average of $1.39. In Cardiff 25 cases 'Crawfords' averaged $1.30 per case; Manchester made $1.33 per case for 12 cases, and Leeds $1.22. On the other hand 198 cases 'Elbertas' sold in London for 94 cents per case, 24 cases sold in Birmingham for 83 cents per case, and 177 cases in Glasgow for 85½ cents per case. The whole shipment of 1,284 cases sold at an average of $1.04 per case, while the charges averaged as follows:—

Freight from St. Catharines to Montreal, four cents per case; ocean freight, 9.6 cents; selling charges in Great Britain, including commission, 9.7 cents; total charges, 23.3 cents per case, leaving an average net return f.o.b. cars St. Catharines of 80.7 cents per case, or about 13½ cents a pound. From this must be deducted of course the cost of the package, packing material and extra labor.

It is obvious that if any plan can be devised whereby the chilling of fruit can be accomplished in a few hours instead of taking days, the fruit will carry much farther and in a better condition. — J. A. Ruddick, Dairy and Cold Storage Commissioner.

The bulk of our apples are sold in green grocery stores and every buyer knows what a barrel contains. I should like to see a standard barrel for Ontario.—Eben James.

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With honey nice and thick.
They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1; six, $5; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.
I now have 750 nuclei and am filling orders by return mail.
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$2.00 If mailed to us on or before September 30th, 1913, will pay for one NEW yearly subscription to The Canadian Horticulturist and Beekeeper and a copy of ABC & XYZ In Beeculture, postpaid. Regular price, $3.00.
THE HORTICULTURAL PUBLISHING CO., LTD., PETERBORO

Regulations re Imported Fruit

The recent amendment to the Inspection and Sales Act affects chiefly imported fruit. According to the new regulations every importer of fruit must have all grade marks found on closed packages containing imported fruit erased or obliterated when such marks are not in accordance with the act or the new regulations. This must be done when the packages are being taken from the railway car, steamship or other conveyance in which they have been brought into Canada. The importer must place on the end of such packages the proper grade marks, the correct name of the variety of fruit, and his own name and address.

Persons violating such regulations are liable to a fine of not more than fifty dollars and costs or, in default of payment, to imprisonment for a term not exceeding one month. The packages of fruit not properly marked may be confiscated.

Copies of the circular may be obtained, free of charge, from the Publication Branch, Department of Agriculture, Ottawa, or from any Dominion Fruit Inspector.

The Market Outlook

Up to the time of writing there has been a very brisk demand throughout the Dominion for all kinds of small fruits and prices have consequently been rather above the average. Whether such a demand will maintain during the latter part of the season when the larger fruits will be upon the market, is questionable, but in view of the fact that in nearly all sections of the Dominion the crop of apples is considerably below average, it is more than likely that so far as this commodity is concerned

DOUGLAS GARDENS, OAKVILLE ONTARIO
PÆONIES
In Pæonies, the trend is to select the finer sorts rather than the low-priced ones. In plants of such a permanent character as these the first cost should be a secondary matter: quality should be the first consideration. Too much cannot be said of the following sorts, viz.:
WHITE
No.
8. **Avalanche**, strong grower, free bloomer, fragrant, late, extra fine. Each $2.50.
40. **Dupont, Mons**, tall, free bloomer, fragrant, midseason. Each $1.
50. **Festiva Maxima**, tall, strong, vigorous grower, early, very popular. Each 50 cts., 10 $4.50.
76. **Duchesse de Nemours (Calot)**, vigorous grower, medium height, fragrant, early. Each 75 cts.
79. **Or, Couronne, d'**, splendid grower, free bloomer, late, one of the best whites. Each 80 cts.
PINK
18. **Calot, Madame**, pale Hydrangea pink, extra fine. Each 60 cts.
42. **Edulis Superba**, strong, upright grower, fragrant, early. Each 40 cts., 10 $3.50.
43. **Elie, Mons. Jules**, very large blooms, strong grower, fragrant, early. Each $1.25, 10 $12.
61. **Golden Harvest**, dwarf grower, free bloomer, fragrant, midseason. Each 75 cts.
96. **Umbellata Rosea**, very strong, upright grower and free bloomer, very early. Each 75 cts., 10 $7.25.
RED
25. **Crousse, Felix**, vigorous grower, med. height, fragrant, midseason. Each 75 cts.
36. **Devred, Constant**, med. height, strong, erect stems, fragrant, very late. Each $1.
We have many other fine sorts described in our Fall Planting List, which is now ready for distribution.
The buying of fine Pæonies is a good investment.
☞ **These prices include carriage prepaid.**
JOHN CAVERS

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there will be no appreciable lowering of prices.

Last year the English merchants for the first time in several years did not advance money to local buyers. Apparently they are adhering to this resolution this year. The itinerent buyer is, however, abroad in the land. We have reports of these buyers offering 75 cents per barrel on the trees. This, of course, is an absurdly low price. There is absolutely no reason why every apple in Canada should not be sold this year at a price that would bring back to the grower at least $1.25 per barrel on the tree. On the other hand, we find reports of some independent cooperative associations asking $3.50 per barrel for No. 1 Spies. It is quite as absurd for the grower to accept so small a price for his apples as to leave him no profit as to ask so large a price that the merchant who handles his fruit will have no profit.

The present market conditions are extremely critical. On two or three occasions we have had within the last decade somewhat similar conditions, and in each case very grave mistakes have been made in placing the fruit upon the market. In 1910 many dealers, noting the short crop, went into the field early in the season, paid fairly high prices to those who knew the market conditions, and paid extremely low prices to the large majority who knew nothing about the market conditions, and in all cases they stored the apples, and when the fruit was all in the hands of the dealers immediately it was held for high prices. A single incident will show the results.

A large retail merchant in an eastern city offered a dealer $3.50 per barrel for a very fine line of Northern Spy apples. This was refused about the middle of November. About the first of December, following a slump in prices in the British market, the dealer offered the merchant these apples at the dealer's original price of $3.50 per barrel. The dealer, however, refused. Four weeks later, in January, the apples were offered at $2.75 to the merchant, who refused them absolutely at any price, giving as his excuse that his customers were not calling for apples, considering them much too expensive, and even though the price were reduced to a reasonable one, he did not consider the chances for sale good. Later these apples were sold at public auction at $2.50 per barrel.

Any prices that may be given yet are purely speculative, but it is safe to say that no differences in the crop that are likely to take place, whether it is an increase or decrease from the present prospects, are likely to change the price either above or below the normal price obtained as an average over several years.—Report of Dominion Fruit Division, A. McNeill, Chief.

Items of Interest

According to the latest report of the Dominion Fruit Division cooper's stock is going to be both scarce and high priced. Barrels are being bought quite freely at 55 cents apiece, and only a few of those who have purchased stock can get the material alone. The package this year will cost no less than one-third the value of the fruit on the tree. This puts the grower who packs his own fruit and all cooperative associations in the position of merchants in coopers' stock and barrels, and if competition becomes keen, as it is likely to become in the near future, those who have the package end of the apple business the best under control will be the most likely to succeed.

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If your lines are sluggish—if your houses are not of uniform temperature, write us. We guarantee to drain your lines perfectly—return the pure, hot condensation to your boiler without pump or injector, or make no charge for the trial. Obey that impulse—write now. **Ask for Trial Trap.**

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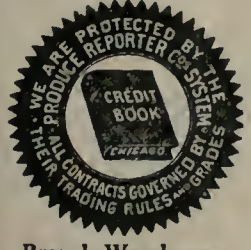

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References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.

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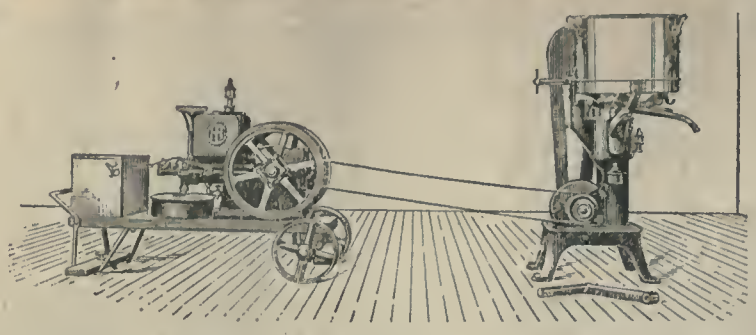

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No other washer has as large an opening. No other washer can be worked with crank handle at side as well as top lever.

Do you use Mexwell's "Favorite"—the churn that makes quality butter?

Write us for catalogues if your dealer does not handle them. 89

DAVID MAXWELL & SONS, ST. MARY'S, Ont.

Eliminating the Middleman

How to obtain a fair share of the price that the ultimate consumer pays for his fruit has long been a problem of the fruit grower. Probably in no part of Ontario has this difficult question been solved to better advantage than in that section of Lambton county in the neighborhood of Forest. President Dan Johnson, of the Ontario Fruit Growers' Association, has done much to solve the problem of how to market fruit without the assistance of the "apple agent."

Last year Mr. Johnson and his brother sold their entire crop of six thousand barrels of apples direct to retailers in western Canada. This crop was the production of a number of orchards either owned or leased by the Johnson Brothers. In addition to their own holdings the Johnson Brothers have rented a number of run-out orchards, and by practicing up-to-date cultural methods have been able to bring them up to a stage of production that has netted good profits.

SELLING TO RETAILERS

Mr. Johnson, who was a member of the Forest Fruit Growers' Association, had urged that organization to market their fruit directly to the retailer instead of through wholesale firms. The association felt that the expense necessary to build up a trade with the retailers would be more than the increase in price received. Mr. Johnson, however, had the courage of his convictions, and decided to act in accordance with his own judgment. He engaged an agent, who travelled through the west and secured orders from retailers. The result was that after deducting twenty-five cents a barrel to defray the expenses of this agent Mr. Johnson came out almost fifty cents a barrel ahead of the association price. The impression must not be held, however, that the association price was a poor one. While the average price received by apple growers in Ontario last year was not more than one dollar fifty cents a barrel, the average price received by the associations was two dollars fifty cents.

A large portion of Mr. Johnson's income is derived from peaches. The entire crop of five thousand baskets, from his four-year-old trees, was disposed of to a firm in a large Ontario town at prices ranging from seventy-nine cents to ninety cents a basket. One peach tree produced a crop of fourteen baskets. Another record tree was a thirty-five-year-old Baldwin, from which were picked twenty-six barrels of apples, and which when sold gave a net profit of eighty-four dollars.

The marketing of the fruit is not the only phase of fruit growing in which Johnson Brothers have eliminated the middleman. They have a cooperage shop where they make all their own barrels. In addition, they have a private evaporator plant where all the culls and scrubs are disposed of to advantage. Even the skins and cores are prepared and shipped to Germany, where they are utilized for the manufacture of jelly. They also have their own packing and storage house and have their own traveller in the west.

The Niagara fruit district will be well advertised at the Panama Exhibition to be held in San Francisco. Arrangements are being made by A. W. Despard, of the Dominion Government Department of Immigration, for the preparation of an exhibit there of fruit grown in that district.

Darr Farm, Niagara-on-the-Lake.

August 1st, 1911.

"Regarding the large block of Pedigreed Cherries, Peaches, Pears, Plums and bush fruits we planted last fall, am pleased to tell you the results are in every way satisfactory. The few trees put in this spring do not compare with the fall plant, either in growth or take. We lost considerably more of the spring planted trees, and the growth is much shorter. In future we plant in the fall.

D. A. RODGERS

PEDIGREED CHERRIES, planted November 1910, 99 per cent. thrifty, July, 1911
The property of D. A. R. ROGERS, Darr Farm, Niagara

We strongly recommend the fall planting of all fruits excepting yearling plums, which are inclined to freeze back, and should be planted in the spring. Where the land is suitable and the work well done, fall planting has in every case proved more satisfactory than spring planting. Particularly is this noticeable this dry season. The land is usually in fine planting condition in the fall, the trees quite dormant, the weather cool, and more time can be given to plant carefully. Fall planted trees are well established by spring, and make a much heavier growth than spring planted orchards. These are a few reasons why fall planting pays.

Orders should be sent in early and we are prepared to make quick delivery as soon as stock is thoroughly matured

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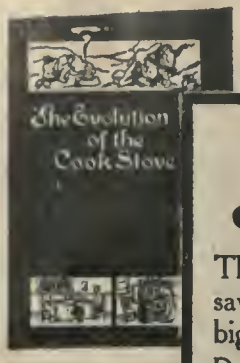

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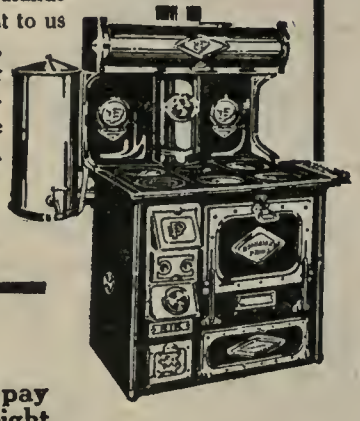

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KELWAY & SON

The Royal Horticulturists

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The Fruit Situation

Advices from England hold out poor prospects for the pear crop in that country. The same applies to France. For these reasons there should be a splendid opening for Canadian pears on the English market. This market demands a high class product and all pears should be wrapped separately and packed in the most careful manner. Last year over six hundred thousand hundred weights of pears were imported into England.

It is expected that the English apple crop will be smaller than usual. The season is opening much more auspiciously than has been the case for several years past. For the last few years there have been large crops in all countries producing a curplus of apples. This year the general condition of the United States crop is officially estimated at fifty-nine per cent. of a normal crop as compared with sixty-seven per cent. for last year. The Nova Scotia crop is estimated at three quarters of a million barrels as compared with one million in 1912. Blenheims, Ribstons and Greenings will be the heaviest yielders. Baldwins and Gravensteins will be very light. Nova Scotia apples are reported to be quite scabby.

Taking the Dominion as a whole the apple crop will be not much over fifty per cent. of a full crop. In Ontario Spies and Baldwins are light as is also the Fameuse in Quebec. British Columbia will have about fifty per cent. of a full crop but the quality is not up to the average.

In the Lake Erie district pears promise to be a good crop. Elsewhere the crop appears to be rather poor. In the Okanagan Valley the crop is fair but the British Columbia crop as a whole is below the average.

Plums are yielding well in the Niagara district. There is a fair crop in British Columbia except on the coast. In Nova Scotia plums are light but better in Prince Edward Island.

The Niagara district reports a fair crop of peaches. There appears to be little trouble from fungous diseases or insects. In British Columbia the crop is good and will likely be harvested in good condition.

Grapes are expected to yield a medium crop. Many vineyards have suffered from the ravages of the rose bug and flea beetle.

Bulletins and Circulars

Other bulletins and circulars recently received by The Canadian Horticulturist are: Entomological Circular No. 2, Flea Beetles and their Control, issued by the Dominion Department of Agriculture; Bulletin No. 164, volume 16, Strawberries, and Bulletin No. 165, volume 16, "Tomato Investigation," two splendid publications issued by Perdue University Experiment Station; circular No. 24, of the New Jersey Agriculture Experiment Stations, contains much valuable information on the home preparation of lime and sulphur spraying mixtures; Bulletin No. 137, Nebraska Agricultural Experiment Station, "Growing Forest Trees, Shrubs and Ornamentals in Nebraska."

The Canadian Horticulturist is in receipt of a valuable book written by a Canadian, Colonel Geo. T. Denison, of Toronto, entitled "A History of Cavalry." The first edition of this work was published in 1877, and gained the Emperor of Russia's first prize for the best work on the subject in competition with officers of all armies. It was translated into several different languages. It is published by the McMillan Company of Canada, Limited, Toronto. Price $2.50.

Perennials

For Fall Planting

Set them when ground is moist and sun low. Don't wait till spring, with its strong sun, drying winds, and rush of work.

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At 30c per doz. or $2.00 per 100:

Seed from Mette, Germany. Twelve named varieties, ranging from white to black. (Customers please say what colors they wish to predominate.)

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(Not the small old-fashioned sorts). The Bride, Giant White long-stemmed, Monstrosa Rosea, Giant Rose.

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Long-spurred Hybrids. Few know the exquisite grace of a vase of these as cut flowers.

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WALLFLOWERS,

35c per Doz., $2.50 per 100.

From finest English seed.

These are not hardy in Canada, but can be carried through winter with greatest ease in cool conservatory.

Every plant a healthy transplanted one.

Please send cash with order.

Express shipments only.

All Plants Ready Sept. 15th.

ORDER NOW.

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Simcoe, Ont.

British Columbia

Fire blight is reported to have again broken out in the Vernon district. This means that decisive measures will have to be taken by the growers for its eradication. Investigation has proved that this disease is controllable. If, upon the discovery of an outbreak, the diseased wood is cut out at least a foot below where the disease has made its appearance, fire blight can be kept in check. An outbreak was also reported from the Similkameen Valley, but it has since been authoritatively denied.

Australia is proving to be a growing market for Okanagan fruit. A contract for thirty thousand boxes of Jonathans (fifty car loads) at one dollar twenty cents to one dollar forty cents a box, f.o.b. shipping point, has been made by Mr. Duffy, who makes a specialty of shipping apples to Australian markets. Mr. Duffy is at present in Europe, and the original contract has been taken over by the Central Selling Organization. Although the price is not a fancy one, it will net the grower over one dollar a box.

The British Columbia consumer will benefit by the recent amendment to the Provincial Horticultural Act. This amendment empowers inspectors and agents to destroy all trees, plants, fruits, and vegetables offered for sale, that have been damaged by frosts or otherwise injured. Imported apples, oranges, and other fruits have been foisted upon the public as being of first quality, but which soon afterwards showed signs of decay because of having been frozen.

There has been much conjecture as to the freight and express rates that would apply to fruit shipped to the prairie provinces. The matter has been finally settled, howeevr, and although all expectations have not been fully realized, decided reductions have been made. It was hoped that the twenty per cent. reduction on express rates ordered by the railway commission would apply to the special rates on fruit and vegetables, but such is not the case. At the request, however, of the British Columbia Fruit Growers' Association the Dominion Express Company has made some reduction on the rates of these commodities. The fruit growers of Wenatchee, Wash., have secured from the Great

THE TENTH ANNUAL

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Some of the spraying materials that are advocated and used by the largest fruit growers are manufactured by The Sherwin-Williams Insecticide Dept. Probably the most widely used insecticide is Arsenate of Lead, but owing to the great demand there have been a number of Lead Arsenates put on the market which, being made to produce large profits for the manufacturers, do not combine the qualities that are essential for efficiency and economy. These Leads are often Acid in their nature, that is the Arsenic Acid is either not wholly combined with the Lead, or else is very loosely combined, so that the action of the sun and the atmosphere, after spraying, causes disintegration or freeing of the Acid from the Lead. When this occurs foliage burning results, also russeting of the fruit.

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NEW PROCESS

ARSENATE OF LEAD

is made by a process that thoroughly combines the Arsenic Acid with the Lead. This is known as a Neutral Arsenate. There is no danger of foliage burning or fruit russeting when S-W New Process Arsenate of Lead is used. It has further advantages in that it is light in gravity, very finely divided and of a fluffy nature, so that it remains well in suspension, and not only sprays evenly, but it also covers greater area of foliage. For these reasons it is a great deal more economical in use and more effective in destroying the pests.

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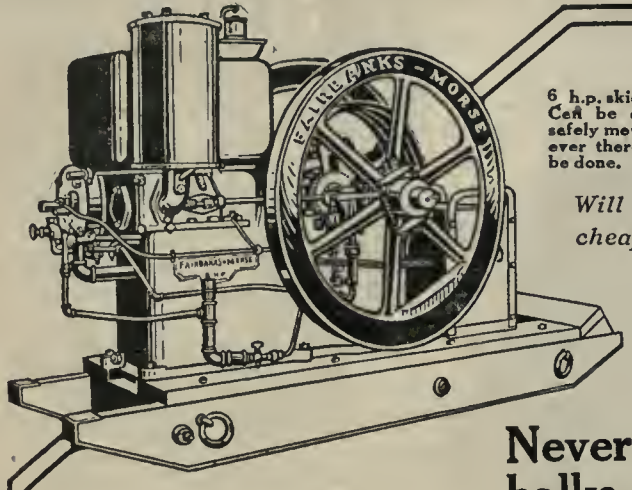
TORONTO



6 h.p. skidded engine. Can be quickly and safely moved to wherever there is work to be done.

Will run on cheap fuels

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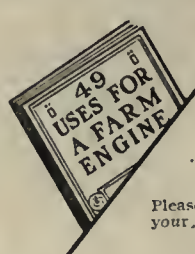
Send for this booklet—"49 Uses for a Farm Engine." It is full of valuable information for the farmer, and is free. Fill in the coupon and mail now.



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Northern Railway considerable reductions in rates on shipments to Canadian points. This means that the British Columbia growers will not benefit to as great an extent as was hoped by the reduction in Canadian Pacific Railway rates as far as competition with the Wenatchee growers is concerned.

Of the forty-seven thousand dollars which has this year been granted to the Provincial Department of Agriculture by the Federal Government, the fruit industry will benefit directly to the extent of five thousand dollars. This is to be spent for demonstration work and for winter short courses with Farmers' Institutes throughout the province. In addition, fruit growers will receive a share of the seven thousand five hundred dollars which is to be devoted to the up keep of instructors and inspectors along the various lines of agricultural instruction and education. Twenty-five hundred dollars has been set aside for the publishing of bulletins and circulars.

For the benefit of English girls who desire experience in local methods of farming and marketing, the Colonial Intelligence League has established an experiment station at Vernon. Fifteen acres of land on the Coldstream Ranch have been purchased and are being laid out for this purpose. It is proposed to send out each year eight or ten women from the Old Country who have already had experience and training to act as instructors. It is proposed to get the institution on a paying basis as soon as possible. Mixed farming, fruit growing, market gardening and poultry keeping will be gone in for, and the products marketed to best advantage.

Nova Scotia

Conditions have greatly changed as regards the apple crop in the Annapolis Valley during the last month, and prospects that looked very rosy in blossom time have now a much paler shade. Unsprayed orchards, and orchards lacking in vigor did not set a large proportion of fruit; but where full attention was given the set was good and at first gave promise of a full crop. This promise in the light of later events was not entirely carried out. The June drop was unusually heavy, due no doubt, to the cold weather in blooming time. Black spot, both on the leaves and fruit is the worst in the history of the Valley.

As usual Gravensteins seem to suffer the worst, and are a light crop of poor quality. Ribstons, Nonpareils, Kings and Greenings are fair, with Blenheims and Fallawaters almost a full crop, and Baldwins good where they did not bear last year. About three-quarters of last year's crop, and of no better quality, would probably sum up the situation.

Tulips For Design Bedding

Artus, red; Chrysolora, yellow; La Reine, white; Cottage Maid, pink; the four finest bedding Tulips grown. Bulbs first size and choicest quality. Price **$1.15** per hundred by express. This is a snap.

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Make the most of every trip with rod and gun.

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TORONTO, CAN.

The other fruit crops as cherries, pears and plums, all suffered from the wet weather while in bloom and have been a light crop. Strawberries on the other hand have been good both in crop and price, there not being enough to supply the demand. An average price of twelve cents a box for the season to the growers, looks as if our farmers were not living up to their opportunities.—M.K.E.

Eastern Annapolis Valley

Eunice Buchanan

At the beginning of the season apples appeared to set well, but later the blossom clusters withered and vanished. The general opinion is that spot is very common and worse than last year, although east of this district the fruit is cleaner.

A greatly increased amount of spraying has been done; most second sprayings were intended to catch the blossoms just before opening, but owing to the cold weather this did not occur until about two weeks later. In cases where the spray was applied just before and after the blossoming, the apples are clean. One grower, who sprayed every ten days, has a very clean crop.

Gravensteins are about a quarter of a crop. General varieties mostly have formed fruits of good size on account of apples setting one in a place. In districts the set has been very irregular, some orchards almost bare, others a quarter of a crop, while others are from three-quarters to a full crop.

Plums are provin~ to be scarce. Wild blueberries are plentiful. The San Jose Scale inspectors are now looking over trees imported from Ontario. Aphis are swarming on young trees, especially Blenheims,

Quick and Easy

That is the way the DAISY APPLE BOX PRESS works. A simple pressure of the foot brings the arms up over the ends of the box, automatically draws them down and holds them in place while being nailed. The fastest and only automatic press on the market.

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Population within a fifty mile radius 9,800,000. Send your consignments to THIS MARKET, which is the most important Apple Distributing Centre in the World---All business done on up-to-date lines---My terms are ***moderate*** and your goods are sold to the best buyers at the best prices---Please write me.

due to dry weather. Tobacco extract to used for these in the early spraying which was ordered from Kentucky, reac ed us too late on account of the floo there.

See This Exhibit

One of the most interesting exhibits nursery stock at the Toronto Exhibition that of the Auburn nurseries, situated ju west of the old Machinery Hall, to the l of the main entrance to the grounds. Th exhibit consists of an extensive and ma nificent collection of evergreens, fruit a shade trees, embracing every variety su able for the Ontario climate.

The exhibit of evergreens is particula worthy of special attention. This compa is making a specialty of evergreens. M Roderick Cameron, their landscape expe spent the past winter in Europe, gatheri together the collection. Each specimen carefully transplanted and the compa prides itself on the fact that their ev greens can be moved any month of t year without setback. Their specimens Picea Grandis, Picea Pyrmidalis, Pic Pungens Glauca, are exceptionally fine.

The display of shade trees consists of w rooted specimens, showing the results repeated transplanting.

The exhibit also includes a very fi collection of fruit trees and splendid fr specimens in glass, grown from their lected strains. The cut flower section the exhibit is magnificent, and is also gro from their own stock. The whole displ is an example of great care in the sel tion of stock, and a careful inspection w repay those interested.

The company has a capable staff salesmen. Mr. Roderick Cameron, the la scape expert, is in attendance. Visitors cordially welcomed.

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The Canadian Horticulturist

Vol. XXXVI OCTOBER, 1913 No. 10

Raspberry Yellows and Cane Blight

Prof. J. E. Howitt, O.A.C., Guelph

THESE are two serious diseases of raspberries that are becoming prevalent in Ontario, and about which very little is known. The writer has found Raspberry Yellows in the Niagara District and in gardens near Guelph. Canes attacked by Yellows have been sent to the Botanical Department from Green River, Stirling, and Whitby, Ontario. It would seem, therefore, that Raspberry Yellows is pretty widely distributed in the province. Cane Blight up to the present time has been observed only in the Niagara District.

The cause of Raspberry Yellows has not yet been determined. The name Yellows is given to this disease not because it is supposed to have any relation to Peach Yellows, but because it describes the appearance of affected plants. This disease is reported by Prof. Stewart, of the New York Agricultural Experiment Station, as being most destructive to the Marlboro, but by no means confined to this variety. The writer has found Yellows destroying King and Cuthbert.

The first indication of the presence of Raspberry Yellows is the curling downwards of the margin of the upper leaves which later become faintly mottled with yellow. As the disease progresses the plants become stunted and yellow, and the berries dry up without ripening or remain small and tasteless. The Yellows seems to spread through a patch in a comparatively short time, as correspondents report that they noticed only a few plants, here and there, in the rows the first season, and the next season found a considerable portion of their plantation stunted and yellow.

No remedy or prevention for Raspberry Yellows is known. Spraying with Bordeaux mixture has been tried, but does not prevent the disease. As Yellows appears to spread quite rapidly, care should be taken to dig out and burn any canes showing signs of the disease. If these are left, the probability is that in a comparatively short time the whole plantation will be rendered useless by the disease. Raspberry Yellows is an important disease, and careful investigations should be made to discover the cause and means of preventing it.

Raspberry Cane Blight, while common in the Niagara District, has not become so serious or so widespread as to attract much attention as yet. It has been proved to be a fungus disease. It attacks both the red and the black varieties of the raspberry. In New York State it has been found that Cuthbert, Marlboro, Ohio, Gregg, and Kansas are varieties susceptible to Cane Blight, while Columbian is notably resistant.

APPEARANCE OF AFFECTED PLANTS

The leaves and fruit on plants attacked by Cane Blight wither and dry up from the tops downward, and the canes become brittle and easily broken. The diseased canes are easily seen in the rows, and are often mistaken for those destroyed by the Snowy Tree Cricket or injured in cultivation. If the diseased canes are examined, the bark is seen to be lighter in color and near the base will be found discolored dead areas, in which numerous minute black dots, the fruiting bodies of the fungus, can be seen. Frequently these diseased areas are discolored and smoky, due to the presence of immense quantities of exceedingly small spores.

Very little is known in regard to the control of Cane Blight. The results with spraying have not proved satisfactory, and the only practical methods of preventing the disease appear to be:

A Busy Day at Warehouse of the St. Catharines Cold Storage and Forwarding Co., the Oldest Cooperative Fruit Growers' Organization in Canada

Picking, Grading and Packing Apples in the Orchard of Johnson Bros., Forest, Ont.

First, to plant only healthy plants in setting out a new plantation; second, avoid planting where raspberries or other related plants have grown; third, to remove and burn old canes immediately after the fruit is gathered.

Some Advantages of Fall Plowing

B. Blanchard, Ellershouse, N. S.

THERE has been considerable diversity of opinion among orchardists as to which is to be preferred —spring or fall plowing. While under some conditions spring plowing will give better results than will plowing in the fall, and in a few cases should be adopted entirely, yet on the whole we prefer to do a large portion of our plowing in the fall. Perhaps it might be well to enumerate some of the conditions under which spring plowing would be advisable, after which we can deal more particularly with the subject in hand.

On sharply rolling land and on steep hillsides spring plowing is always advisable, because the soil is liable to wash badly during the winter months. If the soil is very sandy the wind, too, is apt to carry a lot of it away. In orchards grown under such conditions, cover crops should be grown and not plowed under until the spring. They hold the snow and thus in a large measure prevent freshets, which carry away so much soil fertility from hilly land.

CAREFUL WORK REQUIRED

A case in which, if done at all, fall plowing has to be done most carefully is in renovating old orchards that have been neglected and left in sod for a number of years. To be effective, fall plowing must be reasonably deep. Otherwise, the furrows become compact during the winter, and when the furrows are thin there is nothing to cultivate in the spring, and the ground must be re-plowed. But in such orchards the root system is usually quite near the surface and if deep plowing is practised the roots are so seriously damaged that the trees receive a set back from which they may require a number of years to recuperate.

An argument used by many against tne practice of fall plowing is the tendency to induce winter injury. Under the conditions we have mentioned we can readily realize how damage might be done to the trees because of careless plowing, but it has never been our experience that sun-scald and similar troubles were brought about by fall plowing. We have always believed that such injury was due entirely to weather conditions, a few warm days bringing on a premature flow of sap during late winter, after which a cold snap would freeze the sap and burst the bark.

VALUABLE TIME SAVED

One of the chief advantages of fall plowing, to our mind, is the amount of time which is saved thereby during the busy spring season. As a general rule, when land is ready to be plowed in the spring it is ready to be worked. It is obvious then that if the land is plowed the previous fall, one can commence cultivating earlier in the season to the extent of the amount of time saved by not having to do that same plowing in the spring. It is in the early growing season that we desire to stimulate our trees and the earlier the better. The trees need all the nourishment they can obtain to set and carry a good load of fruit. Later in the season the supply of nourishment must be curtailed and the wood matured before frost. So we plant cover crops. Early cultivation is therefore a necessity.

A most important factor to be considered is the destruction of injurious insects. A large proportion of these pests spend various stages of their life cycle in the ground during the winter months. When the land is turned over their cocoons and egg masses are exposed to the frost and the action of the weather and destroyed.

MAKES PLANT FOOD AVAILABLE

In increasing the available plant food in the soil, fall plowing plays an important part. Frost and water are two of the greatest disintegrating agencies in nature. Heavy clay soils most particularly are benefited by their action. The hard pan when exposed during the winter is broken into particles and in the spring works up nicely. We have noticed that land which has a tendency to heave badly and throw the trees out is not nearly so liable to show this tendency when fall plowed.

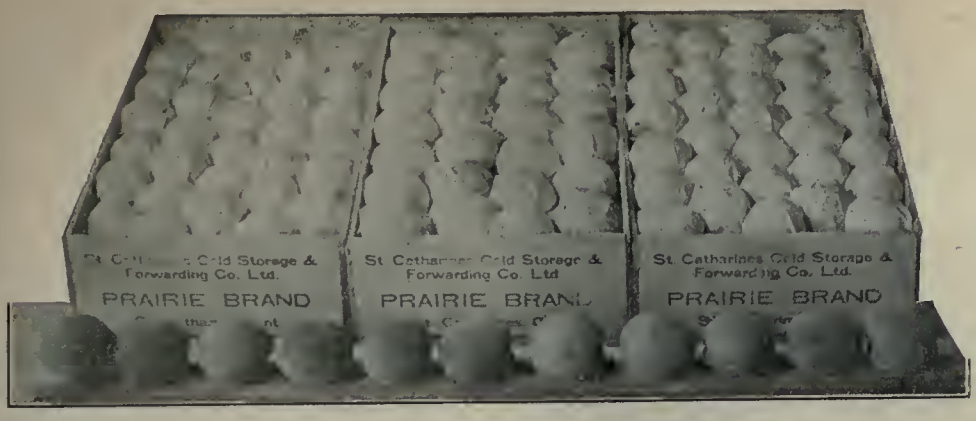
The conservation of soil moisture is an important factor in up-to-date orchard practice. There are very few crops grown that do not require more moisture than that which falls during the growing season. Some require several times more. It is apparent then that the rain which falls during the winter months must be saved for future use. Here again fall plowing plays a part. The loose soil that has been turned up absorbs and holds the rain and melted soil which would otherwise largely run off.

CONSERVE MOISTURE

Thus the subsoil becomes a reservoir in which is stored the water needed the following season. This water tends to dissolve and with the aid of the frost break up the complex soil compounds. The soil also because it is more open is more aerated, and therefore better suited to the growth of bacteria, which in turn break up the organic matter of the soil. Nitrates, which are so necessary to the early spring growth of the tree, are thus liberated when most needed.

With labor ever becoming scarcer and harder to obtain, how to employ the help to the best advantage becomes an acute problem. Here again fall plowing proves advantageous. At this season of the year the teams are not much required for other kinds of work, which will not be the case next spring. To the man who engages in other lines of farming in addition to orcharding, the advantage of getting as much plowing as possible done in the fall is even more evident.

Thorough cultivation is the great secret of success in all crops, whether vegetable, orchard or farm. It it is a choice between the two, cultivation is much more valuable than irrigation.



A Sample of the Peaches Shipped by the St. Catharines Cold Storage and Forwarding Co.

The Value of Attractive Fruit Labels

E. H. Wartman, Dominion Fruit Inspector, Montreal, Que.

We are living in an age of art and technicalities in our fruit trade. The descriptive labels on our beautiful fruits have become known as "Trade Marks," well established and bringing wealth to the owner who has been honest in all his representations. The old black stencil on anything so beautiful and tender and inviting as fruits seems rather out of place in the twentieth century. The plain black may be suitable for boxes of bolts or kegs of nails or molasses casks or a hearse, but surely it is too dead a color and unsightly on fruits or flowers.

Nothing, in my mind, is better for fruit packages than a bright descriptive label on the contents. Where the colors of the fruits are bright red, yellow or green, let these colors be very prominent on the packages which will rapidly develop a trade that will be lasting. The beautiful labels on oranges and lemons from Spain, Italy and Greece, are particularly attractive. When sixty to eighty thousand of these packages are unloaded from one steamer into steamship sheds in Montreal and piled up regularly, one is struck with the beauty of the picture.

From Florida, the West Indies, West and South West Oregon, Idaho, California, Washington and British Columbia, we also see beautiful descriptive labels. Many carloads of California fruits go through Montreal for Glasgow, and when piled in sheds look very attractive. One California firm, A. Black, of Santa Clara, has labels phenomenally beautiful; so much so that one would really think the fruits pictured thereon were real specimens of green or yellow or blue plums and yellow or green pears.

Our large dealers in many cities in Canada have large show windows to accommodate a half car of these fruits. The labels make, in connection with these displays, a very attractive showing. Those who have seen such displays have carried away in their minds these indelible impressions—in fact they have declared them simply beautiful.

To design a really attractive label may take some time and study, but when accomplished it is a stepping stone to fortune. What shall I say about boxes and barrels of our own grown fruits stencilled in black? No pains are taken in putting on the label. It is simply a blotted or smeared lot of letters hardly readable. This kind of marketing is no credit to any shipper. Some, however, have clean cut stencils accompanied by some nicely cut figure, such as a cluster of fruit or a beaver or three stars. These may be very good for the coarser packages.

Our fruits when well matured and uniform in grading are worthy of the most artistic labels that man can devise. There are many of this character in use to-day, yet there should be many more beautifully designed labels placed on our Canadian fruits that are sent to many lands.

With sweet cherries I have found that two sprayings of lime-sulphur is a sure preventative of rot. With peaches I find that one spraying with lime-sulphur while the trees are dormant is sufficient. L. Wolverton, Grimsby, Ont.

Pears for Planting

Prof. J. W. Crow, O.A.C., Guelph

There is an increasing demand for pears. This fruit, under intelligent management, offers as good opportunities for profit as any other tree fruit, but in the past the culture of the pear has been sadly neglected except in one or two localities. The best money variety is Bartlett. The market for it is in Ontario and eastern towns and cities and in the north-west. Canning factories also take care of large quantities.

Under skilful management, Clapp's Favorite would be a desirable commercial variety. It blights rather badly, and is, moreover, a variety which is in good condition for only a short time after picking. It requires to be marketed immediately. It is earlier than Bartlett and valuable on that account. Of the varieties which come after Bartlett, there are very few of value. Kieffer is more widely grown than any other, and the principal market outside of the export trade is with the canneries. It blights less than most varieties, but anyone undertaking pear culture would do better to take the two varieties mentioned previously, and by giving proper attention to blight control good success can be attained.

The Roadside Problem Discussed

James Sackville, Bewdley, Ont.

That was a most interesting article, "The Roadside Problem," which appeared in the May number of The Canadian Horticulturist. Let any one observe, as they ride through the country, the number of trees that are infested with these pests, tent caterpillars. While they are allowed to propagate undisturbed on such an immense scale, it is almost impossible for the progressive fruit grower to successfully combat these enemies.

The writer says: "It is the farmer's

Orchard Scene, Knob Hill District, Armstrong, B.C.

The thirty-acre orchard of Mr. W. S. Burnette may be seen and in the foreground Mr. E. I. Petar's fruit and chicken ranch.

A Prolific Bearing Tree on the Farm of Robert Newcombe, Belcher Street, King's County, N.S.

problem and not until the farmer accepts the road passing through his farm as a part of his farm will the problem be solved." But some farmers are so crowded with other work and others so carelessly indifferent that the work of those who would clean up is largely lost through the negligence of others.

If I were allowed to make a suggestion, I would say: Let the Government appoint competent men who would do the work thoroughly. Where careless farmers or others neglect the work on their own trees, let the Government agent do the work at the expense of the occupant.

Controlling the Plum Curculio

Arthur Gibson, Chief Asst. Entomologist, C.E.F. Ottawa

THIS well-known enemy of the plum and apple has a special fondness for the fruit of the apple, both in the adult as well as in the larval state. The adult beetles hibernate beneath rubbish and dead leaves on the ground, or even under the rough bark of trees. In size the beetle is a little less than a quarter of an inch in length and in color is brown and rough, with black and greyish markings.

In early spring, about the time the buds are bursting, the beetles leave their winter quarters and soon seek nearby fruit trees which later they attack, and in the fruit of which they lay their eggs. Soon after the blossoms fall, sometimes within two or three days, injury by the Plum Curculio is detected. The females lay their eggs mostly in June, but egg-laying is continued throughout July and into August. The eggs hatch in about four or five days, and the young grubs at once begin to burrow through the fruit. Several grubs may occur within a single apple; in fact, as many as eleven have been found within one specimen. In such cases, of course, practically the whole inside of the fruit is eaten.

LENGTH OF ACTIVE LIFE

From the time the eggs are laid until the time the grubs are mature and leave the fruit to pupate in the ground, a period from about three weeks to a month or so is passed as a pupa, in the earth a short distance below the surface. In late July and in August and September the beetles emerge from the pupa, and from the time of their appearance until they seek winter quarters for hibernation, eating is their chief occupation.

It is during this period that the important damage is done by the adult beetles in feeding. In spring the punctures made by the beetles feeding are usually small, and in the growth of the apple do not later, as a rule, show to any marked extent, but in the late summer and autumn months the punctures are large, and several may be present in the same apple. After these punctures have been made by the beetles, the whole is rendered larger by evaporation and the skin and flesh become discolored, the whole, of course, rendering the fruit unfit for the market. Besides the plum and apple, cherry, pear and apricot are also attacked by the Plum Curculio.

In the control of this insect there are three chief recommendations to make, namely: First, spraying the trees to destroy the adult beetles, clean cultivation and the getting rid of all rubbish; second, the careful gathering up and destruction of all fallen fruit; third, clean cultivation.

Where spraying with the poisoned Bordeaux mixture is regularly practiced, using as a poison about three pounds of arsenate of lead to every forty gallons of mixture, a very large percentage of the beetles will be destroyed. The spraying immediately after the blossoms fall is very important, as this will catch many of the insects at a time when the females are about to begin ovipositing. The gathering up as much as possible of all fallen fruit particularly in the earlier part of the season and destroying the same, will of course, also destroy large numbers of the larvæ within the fruit. If it is impossible to destroy the fruit either by boiling or by burying it in a deep hole and covering with earth, it might be spread out in an open space so that the direct rays of the sun would reach the apples. The grubs are very delicate and experiments have shown that when direct sunlight falls upon the young fruit the contained grubs are killed.

DESTROY ALL RUBBISH

All weeds or other useless vegetation and rubbish should be removed and in orchards where surface cultivation is practiced, especially during July, large numbers of the pupæ will be disturbed by being exposed to weather conditions, birds and other enemies. With regard to such cleaning up it is important that all useless growth near fences and along road sides be removed as well as all wild plums and other useless nearby fruit trees.

When buying nursery stock, the grower should stipulate the class of stock desired, and should expressly intimate that if stock is not satisfactory it will not be paid for. Orders should be sent in early and stock should be delivered early. Stock which arrives late and proves unsatisfactory is very often planted by men who would rather take chances and say nothing than to refuse the stock and wait another year in order to secure better trees. On receipt from the nursery, trees should be inspected at once. If at all dried out they should be heeled in immediately, and if seriously dried out the entire tree should be buried in the ground, but even then recovery is not always certain.—Prof. J. W. Crow, O.A.C., Guelph, Ont.

A Modest Home and its Lovely Surroundings

"STONE WALLS," sings seventeenth century Lovelace, "do not a prison make;" nor do four stone or brick or wood walls make a home. Apart from the inner conditions constituting a home, the surroundings are an important element in making a house a home. The grandest building, without apt environment, is like a diamond without its setting, which, fittingly joined, Benvenuto Cellini, regarded as converting a mere precious stone into a jewel, giving it its full beauty value. Surrounding a house with trees, and planted and tended grounds, as far as the external element goes, makes it a home in a real, and, in proportion to the skill and taste employed, beautiful sense.

Front Lawn, Castlewraye, Residence of Mr. F. R. Yokome, Peterboro, Ont.

The home-making environment of a house may vary, according to conditions and facilities from a tiny lawn, the size of a dining table, to a sweeping expanse of grounds, each effective or otherwise, according to treatment.

For a small or medium sized area the formal or Italian system of gardening—using the word in its widest meaning—is the better adaptable. The more picturesque and homely way of natural gardening is more, if not exigently adaptable to larger grounds. The natural way is to follow, and at the same time direct and, improve upon nature's way, by adapting it to conditions and desired results. Nature, in planting her trees and shrubs, never places them symmetrically; she never shows the bad taste of "matching" a shrub or flower with one of the same kind. If the good Lord were planting rose bushes, He wouldn't place one on each side of a house entrance, as stiff and formal as two grenadiers on gaurd at the door of a royal drawing room. Nature shows infinite variety with exquisite beauty of effect in her placing of plants, flowers or trees. Therefore, if we would succeed in making an effective floral or arboreal setting for a residence, on the natural plan, we must study to follow nature's way.

One of the two or three main essentials in a garden or grounds of this kind is trees, and space permitting, the bigger and the most fittingly placed the better. Trees are the first condition of a house setting. They give dignity and a sense of repose, with their "calm shade that brings a kindred calm." Mrs. Hemans' "stately homes of England" owe their charm to "the tall, ancestral trees" that make it a "pleasant land." Trees should surround the house and grounds like guardian sentinels and not too near it—to shut out the vital sunlight—and trimmed high so that sunlight and air have free play consistent with shade and shelter at some time of the day, and with the growth of grass and other things.

Another essential condition of nature's garden-making plan is a lawn of good turf, not necessarily mathematically level, like a bowling green, but smooth and, at all times, neatly groomed—as in nature, a companion idea to rus in urbe; the fairest beauty of face would be spoiled if the face were not kept clean.

In the natural scheme of doing things a lawn is not a mere uniform stretch of sward, but a place for planting trees and shrubs and flowers, corresponding to the trees or clumps of trees and shrubs of varied sizes and groupings that make the diversity and beauty of a landscape, which without them would be a "flat, stale and unprofitable" stretch of irksome verdure.

The beauty and homely effect of the placing singly or in groups of shrubs and flower plots, depend upon fidelity to nature's way of doing these things. Done in this way; the arrangement of turf, trees, shrubs ,and flowers—if studied absence of system and symmetry can be called arrangement—will have a strikingly beautiful and artistically natural result.

Given the house and suitable ground, and a few fortunately planted old trees, surprising results can be got at trifling cost in money—only a little, or rather, a great deal, of loving care and exercise of common sense, or what is rarer, cultured sense of the beautiful.

The pictures accompanying illustrate, to a necessarily limited extent, the

East Side View, Castlewreye. Note the Sylvan Effect

View in the Garden of Mr. J. H. Bennett, Barrie, Ont.
A description of this garden was published in the February issue of The Canadian Horticulturist.

charming effects that have been produced by the expenditure of only a few dollars. The pictures are two views of the house and grounds of "Castlewraye," the residence of Mr. F. R. Yokome, editor of the Examiner, and represent the work and time of fewer than a dozen years and the expenditure of only a little money. When the place came into his possession, its unkempt, neglected and weed-grown condition made its purchase price a reasonable one; but its possibilities made it desirable. The grounds, half an acre in extent, have the house (with about 75 feet of well shaded and ventilated verandah on the south and east) placed in the middle, so that the sun strikes every window on all sides at some time of the day, subdued in part by the splendid and well-grown trees, chiefly elms, that line the 120 feet of street frontage—by the way the only straight lines about the place—or stand at the margin of the grounds on all the other sides. The grounds are nearly all laid down to lawn, which is not a dead level, but slopes irregularly from east to west, and is dotted with shrubs of varying kinds and sizes. Along part of the front within the enclosing fence—an unfenced lawn is a "common"—and at both ends of the grounds, is planted practically a hedge of unclipped lonicera and philadelphus, grandiflora, and coronaria—incorrectly called syringa—both easily grown and common, but very effective shrubs; and two or three beautifully-shaped specimens stand here and there. Other common but effectively grouped shrubs are althea, wigelia, spiraea, berberry, two or three varieties of hydrangea, and three or four trees of our most beautiful conifer, red cedar. Other features on the west part of the lawn are perennial borders, and at the rear is a stationary trellis for sweet peas, with a careless hedge of lonicera, white lilac, and philadelphus as a background. With the comparative abundance of shrubs and trees, they are as disposed and treated—the trees trimmed high—that there is a good thick turf, whose growing is almost the only artificial and formal element in these grounds. Considering the trifling cost, these grounds, as may be judged by the pictures, give a decidedly charming ensemble, the chief charm of which is its natural, impressionist beauty and homelike, peaceful and reposeful effect, expressed by an appreciative neighbor in the words: "It's an awful homey-looking place"; and its adornment didn't cost the price of a set of awnings for an ordinary house.

The Modern Peony

J. H. Bennett, Barrie, Ont.

There is probably no other plant with such varied usefulness as the peony. Its use in beds or clumps and for effective massing in landscape work is unequalled. There is no handsomer border than one of peonies and here it shows to best advantage in clumps of two or three plants. Other plants may be used if continuity of bloom is desired. An effective plan is to plant narcissus and lily bulbs between the peonies. The narcissus gives earlier bloom than the peonies before the latter have finished blooming, and their blossoms last for some weeks after the peonies are done.

An attractive use for the peony is as a low ornamental hedging for a drive, walk, or lawn, where defence is not required. The dark, glossy, green foliage, untouched by insects or disfigured by disease, is exceedingly attractive through the spring and hot summer months.

A word of caution may here be given with reference to the blooms of the peony. After being transplanted peonies will not produce typical blooms the first season, indeed not until they become thoroughly established. Many fine double varieties will throw single or semi-double flowers in the first and second years. It takes fully three years from the time the root is planted to produce normal flowers. Blooms therefore should not be finally judged the first or second season, and making comparisons in a large collection before the third season is fraught with considerable risk and often leads to disappointment.

LIST OF VARIETIES.

I must of necessity refrain from any attempt to give a list of the best kinds of peony, as this is to a great extent a matter of opinion, taste, and fancy. I will, however, try to give a list classified as early, mid-season, and late, with a view to helping those amateurs who desire to plant such varieties as will prolong the blooming season:

Early white, Festiva Maxima; early pale pink, Eugenie Verdier; early deep pink, Edulis Supera; early red, Augustin D'Hour.

Mid-season white, Madame Crousse; mid-season pale pink, Albert Crousse; mid-season deep pink, Princess Beatrice; mid-season red, Felix Crousse.

Late white, Mireille; late pale pink, Grandeflora Rosea; late deep pink, Madame Forel; late red, Eugene Bigot.

While refraining from giving a list of what may be considered good or the best peonies, there are no poor ones, yet anyone who grows Festiva Maxima, Edulis Superba, Golden Harvest, Modele de Perfection, Felix Crousse, and Eugenia Verdier will not be disappointed, either in size, color, beauty, or fragrance of the blooms.

While the first cost of many varieties may seem high, the peony is really the most economical plant one can buy, from the fact that it represents a permanent investment and one which pays annual dividends of increase of at least one hundred per cent.

Almost every family of even the most moderate means spends annually quite a good sum on geraniums, and other bedding plants and at the end of the year has nothing left to show for it. Plant the peony and it will last as long as you do, and longer.

Anyone who undertakes the culture of this most beautiful plant will be amply repaid by the fragrance, beauty, and abundance of bloom, with which his garden will be filled.

Fall Work with the Flowers

Henry Gibson, Staatsburg

WHEN October comes to tint all growing things, it almost seems as if nature wished to remind man that we can still enjoy a vast amount of bloom indoors during the winter months if we would only pay a little attention to the needs of our plants.

Plants intended for winter blooming indoors, which have been summered out in the garden or on a shady corner of the verandah, will now be indoors. Give them all the air possible on fine days, for the change from outdoors is a trying one, no matter how vigorous the plants may be. With proper attention and atmosphere they should thrive, but how few do at all well. Perhaps you have tried to grow them and had your disappointments, despite your best efforts and attention. Perhaps you put the blame on the furnace, presuming that the gas killed them, as surely it would, but it was not really the gas, but lack of humidity in the atmosphere of the rooms, which was the cause of your failure.

The active root hairs of a plant are almost aquatic and must always be in contact with an adequate supply of water.

The stem and leaves are aerial, but their behavior and form are largely determined by the water in the air; that is, the humidity. The water supply is used by the root hairs, while the water loss is the result of evaporation by the leaves. The humidity of the air exerts a direct control upon the amount of water evaporated by the leaves, and it is evident that the evaporation will be greater when the air is dry. If this evaporation or water loss is greater than the supply, curling, drooping, and wilting of the leaves ensues.

Even when you water your plants faithfully, the excessively dry atmosphere of the house is apt to overwork them, by drawing up moisture through the stem and leaves, for dry heated air will take up what moisture it requires from every possible source. When you consider that the humidity outdoors on a summer day is about seventy per cent. you will appreciate what an unnaturally dry atmosphere obtains in our homes in winter, where if any water at all is evaporated it will be at the most but a few quarts, with a resultant humidity of about eighteen to twenty per cent.

By all means evaporate water freely, both for your own good as well as for that of your plants, by keeping a pot or kettle of water steaming on the heater or by pans on the radiators. Another way to accomplish the same result is to elevate your pots on empty thread reels and fill the saucers with water. Elevated in this way, the air is able to pass through the hole in the bottom of the pot, which would not be the case if the pot were stood in the saucer when it was filled with water.

PROTECTING THE OUTDOOR PLANTS

If we would have the best from the outdoor garden next season we must give it some attention in the way of mulching the various beds and borders to help the plants withstand the rigors of winter. While it is not advisable to give any protection to the beds and borders until severe frosts are expected, yet it is advisable to get the mulching material ready. Strawy manure and leaves, held in place with pine boughs, make excellent material for this purpose.

As soon as the early frosts have cut down the plants, clean them off, and get out all the weeds. These latter pests are sure to drop some seeds that will give you trouble next spring. When cleaning off the old stalks of the plants, sever them four or five inches above the ground. This allows them to ripen better and prepare for the winter's rest. Carry away the old rubbish that you clean off and burn it. Don't use it for protection during the winter, for it is sure to contain larvae and cocoons of insects, which would hatch out in the warm days of next spring and give you lots of trouble, to say nothing of the damage to the plants.

TREATMENT OF BULBS

Gladioli, Dahlias, Cannas, Caladium, and other tuberous subjects should be lifted and placed in a sunny place for a few days, when they should be stored in a frost-proof shed or cellar until the spring. When storing these roots and bulbs, artificial heat must be avoided or they will be spoiled. A temperature of from thirty-eight to forty-five degrees is the most suitable for these subjects during the winter.

Roses will require protection during the winter. If they have made long growths that are likely to whip with the wind, cut them back about one-third of their length. Protection may be afforded (if the bed is a round one) by running a length of wire netting round it and filling the centre with dried leaves, on which may be put some pine boughs or other brush to prevent them blowing about. Another method applicable to more isolated plants is to tie straw securely round them and earth them up around the base. Crimson ramblers and other roses growing on walls should be taken down and buried with soil to the depth of a foot or more.

Short Hints on Planting

Wm. Hunt, O.A.C., Guelph, Ont.

Do not begrudge labor in digging a hole for planting any tree or plant. Dig it deep and wide enough so that the roots can be spread out nicely over a surface of fine soil. Loosen the soil a spade's depth below where the roots are to be placed. The terminal points of all roots should point downward or in a horizontal direction, not upwards. Set the tree or plant a little deeper in its new

The Gladioli Grounds of Mr. A. Gilchrist, West Toronto, Where His Champion Gladioli are Grown

Wild Flowers in a City Garden

A lover of wild flowers who has had success in their cultivation in her garden is Mrs. Gowan, of Peterborough. The illustration shows a corner of her garden in which may be seen ferns, trillium, jack-in-the-pulpit, anemone, violets, golden-rod, orchids and Dutchman's breeches. The little blossoms in the foreground are a species of the wood geranium, Herb Robert.

quarters than when in the nursery. The surface soil mark can usually be seen on the stem of the plant. Stake all tall plants at once if tops are very heavy, rather than allow the wind to constantly blow them around in all directions. In tying plants or trees, tie them so that the tree cannot be chafed or rubbed.

Take off all wire fastened labels from the stems of plants or trees when planting, or they will, if neglected, cut the stem almost asunder in time.

In planting trees, use finely pulverized soil in and around close to the roots. Sand half an inch in depth sprinkled over the roots is a good material to induce a quick, strong root development. Never put manure of any kind in direct contact with the roots when planting. Pack the soil fairly firm around the roots so as to leave no air spaces. All of the roots should be in close contact with fine soil or sand. Puddling the roots before planting in a thick mixture of clay soil and water is useful, especially when the soil they are to be planted in is very dry.

Prune off sufficient of the growth of deciduous trees, shrubs, or rose bushes so as to give a proper balance of top and roots. A too large proportion of top to the root means slow development at the best. It is better to have the roots to overbalance the top in quantity, than the reverse. Rose bushes especially should have the tops pruned down to as small a proportion as possible, as they often have but a very small quantity of fine fibry roots. Cut off or shorten the large thick roots especially where broken or damaged. The fibry roots are the roots that start dormant plants quickly into gowth again. Plants or shrubs taken from fairly heavy soils usually have a better root system, and transplant more successfully than do plants taken from light, sandy soils. Plants or trees set out in very early spring, seldom require any water when planted.

Wild Flowers in The City

E. Aylesworth, Crichton Gowan, Peterborough, Ont.

Being impressed by the beauty and variety of wild flowers which grow in profusion within our city limits, I felt curious to know the extent of their beauty before man began to interfere with the soil. I accordingly searched for a record of them in pioneer literature, and found the following by Col. S. Strickland: "Several hundred acres of open plain were dotted here and there with clumps of oak and pine. In the spring these openings were gay with wild flowers. Amongst the first to show their varied beauties might be seen the red, white and blue hepaticas or liverwort, the white and yellow violet, and many others indigenous to the country. Later in the season the cardinal plant, lobelia (this plant grows wild in the woods, especially in damp places. It is used extensively among the settlers as an emetic), lupin, and tiger-lily, and a profusion of flowery gems, lent their aid to adorn the charming scenery of this sylvan spot."

The place here described by Mr. Strickland is the site upon which the city of Peterborough stands. Peterborough is, therefore, by nature, entitled to its appellation, "The City Beautiful." I have seen old walls and banks near the river covered with wild flowers and vines of brilliant hue, more beautiful than anything under cultivation. Our city furnishes evidence of how persistently wild flowers cling to their native soil even when disturbed by cultivation.

The flowers which appear in the accompanying illustration were gathered within the city limits in July, about thirty different kinds being represented. The original, in addition to being a beautiful artistic photograph, is interesting to examine through a magnifying glass, the flowers being easily recognized in this way.

Little attention seems to be paid to the preservation of wild plants and flowers, yet an acquaintance with them is necessary in the study of botany, art and scientific floriculture. Therefore, should not our school teachers, school boards, and horticultural societies be interested in the preservation, where possible, of trees, plants and flowers?

As to the responsibility of parents in the matter, the admonition of Mrs. Traill is worth repeating here: "Mothers of Canada, teach your children to know and love the wild flowers springing in their path, to love the soil in which God's hand has planted them, and in all their after wanderings through the world their hearts will turn back with loving reverence to the land of their birth: to that dear country, endeared to them by the remembrance of the wild flowers which they plucked in the happy days of childhood."

A collection of wild flowers and ferns pressed by the late Mrs. Traill is one of the cherished possessions of our city museum.

Climbing Roses

Wm. Hunt, O.A.C., Guelph, Ont.

The best way to keep climbing roses from being killed back by frost in winter is to take them from the trellis and lay them down as near the ground as possible about the end of October. About the end of November, or early December, three or four inches of strawy manure or some pine or cedar boughs should be placed over them. Tying them down in the way mentioned keeps them below the snow line, as a rule, during the winter. The covering protects them after the snow has melted late in winter or early spring. Take the covering off when the weather is dull, warm, and mild about the beginning of April.

Acid phosphates should not be sown with the seed or too near the roots of growing plants, as injury may result.

The Culture of Bulbs

Henry Gibson, Staatsburg

NO garden is complete without narcissus, which include jonquils, and the Chinese sacred lily, or fairy flower. The innumerable positions in which they can be planted to advantage in the garden is in a measure responsible for their popularity. They may be grown in the town lawn or clumped here and there in masses of distinct varieties in the herbaceous border. As a border for a shrubbery they give their full measure of graceful splendor. For natural plantations, outlying portions of the lawn, the wild garden, terrace slopes or the banks of streams, they possess a grace and beauty that is almost indescribable.

DEPTH OF PLANTING

Owing to lack of uniformity in the size of the bulbs it is not advisable to try to give any definite depth at which they should be planted. The simple rule of covering the bulb from two to two and a half times its length, measuring from the base to the neck where it begins to swell out into its rounding shape, is a good one. The distance between the bulbs should be three to four inches for the smaller sizes, and five to six inches for the larger ones. When naturalizing bulbs an effective way of spacing them is to take a handful from the bag and drop them where they are to be planted. In this way a natural grouping is the result.

For the window garden grow narcissus in pots the same as you would tulips and hyacinths. Don't plant single bulbs in a pot; they are not effective. Put five or six bulbs into a six or seven inch pot. The designations, daffodils, narcissus and jonquils, are often misapplied by amateurs, and the result is invariably disappointing. Daffodil is a name applied to all double narcissus. The name "narcissus" calls for the poet's narcissus and its family. Jonquil is a popular name given to all single trumpet narcissi, regardless of any other form or class.

The Chinese sacred lily produces white flowers with yellow cups in bunches of five or six on a stem. Although they do well when grown in pots, like other bulbs, they give the best results when grown in a dish or bowl half filled with water and pebbles.

A covering of some kind is desirable for all bulbs planted outdoors; not so much to keep out the cold as to prevent alternate freezing and thawing, which tears the roots, and frequently lifts the bulbs almost out of the ground. For this purpose nothing is better than nature's covering—leaves. Do not spread them on too thick or they will heat towards spring and send out a premature growth, which would be followed by disastrous results should frost get near them. Pine boughs, straw and old corn stalks are excellent substitute for leaves, but they, like the leaves, should be removed as early as possible in the spring.

POT CULTURE

Bulbs planted in pots for indoor blooming, and placed in a cool dark place, as suggested, will take from six to seven weeks to root. One can readily ascertain when they are rooted sufficiently by turning one out of its pot. If the soil is well interlaced with young white roots they are ready to bring to the light. This is a process that should be done gradually, as too strong a light at first has a very detrimental effect on the plants.

A good idea is to have a table with three shelves in it in front of the window. Such a table can easily be constructed at home, and the utility of it is too evident to need comment. When the first bulbs are brought in to the light, place them on the bottom shelf. After they have been there in the diffused light for a few days they may be placed on the second shelf, and finally on the table, into full sunlight. Meanwhile the lower shelves can be fitted with other pots to provide a succession of bloom.

Following is a list of seven varieties of bulbs that will provide continuous bloom from Christmas until Easter in the window garden. The first date is when the plants are brought to the light; the other two give the season of bloom:

Chinese Lily, second week in Nov.; bloom, Dec. 23 to Jan. 12; Paper White Narcissus, first week in Dec., bloom, Jan. 9 to Feb. 1; Grand Soliel d'Or Narcissus, first week in Dec., bloom, Jan. 22 to Feb. 13; Garrich Hyacinth, third week in Dec., bloom, Jan. 28 to March 1; Poeticus Cunatus Narcissus, last week in Jan., bloom, Feb. 26 to March 19; Van Siaw Narcissus, second week in Feb., bloom, March 7 to March 25; Princess Manionne Tulip, first week in March. bloom March 23 to April 12.

Fertilizers for Ginseng

Prof. J. E. Howitt, O.A.C., Guelph, Ont.

Acid phosphate (treated rock or bone) is a satisfactory fertilizer for it maintains the acidity of the soil and thus prevents conditions favorable to the development of the rust or rot fungus. Acid phosphate should be applied to the beds at the rate of one thousand pounds an acre. Some growers use heavier applications than this.

The digging in of a good forest leaf mulch by some growers is claimed to make an excellent fertilizer and it is thought to keep the soil in the proper acid condition. Experiments are now under way in the United States to test the efficiency of leaf-mulches in maintaining the acidity of the soil and preventing rust.

Nitrate of soda is often applied to ginseng beds, but great care is required in its use as heavy applications often cause a burning or scalding of the foliage. The same is true of heavy applications of barnyard manure especially if applied fresh. A light mulch of farmyard manure, even fresh, applied in the fall of the year, gives good results.

Calceolarias in the Border at the Guelph Agricultural College

Fall Work in The Vegetable Garden

By P. D. Powe, Cainsville, Ont.

DURING the present year there has been a large number of new men started into the market garden business who have little or no experience in this line of work. To them the following may be of use:

Roots should be pulled or plowed out on a dry day, when the soil is dry enough to shake off. The leaves should be removed with a knife or twisted off just above the crown. When cured, the tops make a fine feed for the winter months. Where there is no silo, the following has been found to answer well:

A broad, flat trench, eight to ten inches deep, should be dug in a well-drained spot. In this the fresh leaves are placed eight inches deep, heavily strewn with salt and then thoroughly rolled down. (You can't pack too hard.) Then a fresh layer of leaves, salted and packed as before, is added, and when you have all your leaves used up finish the heap with a coat of straw three inches deep. The soil removed from the trench is packed over all to keep out water and air. This coat should be about three inches deep. In eight weeks the ensilage will be thoroughly cured, and should be used before you start on your roots.

STORING THE ROOTS

The roots themselves should now be tended. While a good roothouse is very desirable, it is by no means a necessity. Mangels, turnips, parsnips, and carrots may be stored in heaps in the field. A layer of clean straw is spread upon the ground two inches deep and four to six feet in diameter. Upon this build a pyramid to a point so that no more roots can be placed on top. The pile is then covered with three inches of clean straw and drawn to a chimney at the peak to let off the gas. Then cover the whole with three inches of dirt. When winter really sets in, increase this to six inches.

Potatoes should be harvested either with forks or with a potato digger. Allow them to dry for a couple of hours before gathering. This ensures cleaner potatoes and often prevents rot. Store in a dark pit or cellar at a temperature of thirty-four to thirty-six degrees Fahrenheit. Potatoes lose about fifteen per cent. of their weight during winter.

Cabbage may be very easily handled during winter by storing in pits. Take a well-drained piece of land, place the cabbage together with the outside leaves left on. Stand them head down as close together as possible. Cover with eight to ten inches soil, well worked in around the plants. After a first hard freeze, cover the whole with straw or old cornstalks.

In storing celery, place each plant, with a ball of earth adhering to the roots, in a box, roots down, as close as possible. Cover with straw and place in a cool cellar. Another method is to make rows, three to six plants wide, on a rise of ground and as long as required. Bank up to the tops of the leaves with six inches of straw, and on top of the straw place three inches of dirt.

THE ONION HARVEST

Onions should be harvested as soon as the tops die down. Pull them and allow them to lie in the row for a week under ordinary conditions. A dry time should be chosen so that the onions may be well dried. If it rains upon the onions, turn the lot as soon as possible. When they are thoroughly dried remove part of the roots and tops from the bulbs. Sort out all stiff necks and soft onions from the others. Place the good onions in open slat crates so that air may pass through, and store in a cool shed or loft. Keep them from light and just above freezing point. When wanted for market, remove the roots and balance of top.

PREPARING FOR MARKET

Great care must be exercised in selecting for market only the smooth, regularly shaped specimens, which should be graded to size. Colour should also be considered, as an attractive appearance means much.

To have roots of good condition, they must be grown quickly, thereby ensuring them free from all woodiness or coarse texture. They must be carefully washed, cleaned, and trimmed, while boxes, baskets and bags should be clean and present a neat, natty appearance. The small, misshapen roots should be fed to the cattle, as they detract from the value of the goods when marketed.

Many farmers do not know of the money to be made, with little work, from growing mangels. These readily find a market in town and city. One man, a neighbor of mine, made $20 in one day selling them in bushel lots, at twenty-five cents a bushel. Can you make money more quickly?

Storing Vegetables for Winter Use

Henry Gibson, Staatsburg

ALTHOUGH the growing season is over, the vegetable garden demands some final attention. Where crops are still in the ground and weeds have been allowed to gain the upper hands, cut off whole with a scythe and burn them, thus making it easier to get at the crops and also preventing the weeds from seeding.

It is a great mistake to allow the vegetables not used to rot on the ground. They will pay handsomely for lifting and storing. A good dry frost-proof cellar from which all artificial heat is excluded is an ideal place in which to store them. When such a place is not at one's disposal a substitute may be had by partitioning off part of the cellar and providing for ample ventilation from the outside. Or a cold north room in the house where the window can be kept open most of the time will do very well. In the latter case, boxes or barrels, fitted with spaghnum, are very suitable, as the spaghnum is light and clean. For storing in the cellar, clean, dry sand is generally used for storing most root crops which would shrivel if left exposed to dry air.

In storing fruits and vegetables, always see to it that they are clean and sound—the smallest spot or bruise is a danger centre. Keep the temperature as even as possible and give air on all possible occasions. Keep an eye open for rats and mice.

Beans still in a green state can be picked and preserved in modern glass jars. Those in a dry state and those partly dry may be stored, vines and all, under cover, and later picked and shelled.

Beets, carrots, turnips, and parsnips may be stored in sand or moss. Cut off the tops within an inch or two of the root. Only sufficient parsnips for immediate needs should be lifted, as they keep quite well in the ground during winter.

Cabbage and cauliflower may be hung up by the heels in the cellar. If large quantities of cabbage are to be saved, a trench in the garden should be dug and the cabbage placed in it. Cover with some clean straw and then soil to the depth of ten to twelve inches.

PACK CELERY WITH ROOTS ON

Celery can be packed in narrow boxes on two or three inches of wet sand. Leave the roots and earth on; pack upright and close together. A slight freezing will not hurt it.

Cucumbers, melons, and eggplants cannot be kept over winter, but if they are cut just before frost, and stored in a dry cold cellar, they will keep good for some time.

Potatoes and onions may be stored without any covering in a cool, dark cellar. Potatoes are best in a bin of convenient size or they may be placed in a corner of the cellar, and kept in place with boards. Be sure that the onions are perfectly dry before putting them into their final storing place. Perhaps the best receptacles for storing these are slatted barrels or boxes, giving free access to air.

Squash and pumpkin should be gathered before frost, cut with a small piece of vine attached. Handle them as carefully as you would eggs, as the slightest bruise will soon spoil them. Store in a sunny dry place where frost can be kept out. Later store in a dark, dry place, with the temperature as near forty degrees as possible.

HOW TO TREAT TOMATOES

Just before frost, pick the best of the unripened tomatoes and place them on some clean straw in a cold frame or greenhouse. Others may be put on straw in the cellar. In this way you may prolong your supply of tomatoes until nearly Christmas.

Put a few plants of parsley in a pot or box and place them in the kitchen window for use during the winter months. Clean up the rhubarb and asparagus beds and put on a good dressing of coarse stable manure. If you have a greenhouse, and would like to utilize some of the space under the benches, lift a few roots of rhubarb for forcing. Tender young stalks of it are sure to be appreciated in mid-winter. In lifting, dig round the four sides with a spade, being careful not to damage the crowns. Turn the root upside down and let it lie on the ground to freeze well. Then place them under the bench where you intend to force them. Work soil well round and between the roots, so that the crowns are just peeping out; water thoroughly. Spray them occasionally with lukewarm water until the growth has started, and maintain as even a temperature as possible.

Potato Scab

Prof. E. M. Straight

POTATO scab should not be confused with the potato canker or wart disease, sometimes called the black scab. This latter disease is established in Newfoundland but is not found in Canada so far as we are aware of.

The roughened, scabby, pitted surface of potato tubers affected with scab is too well known to require description. It is probable that no other potato disease has a wider distribution. In addition to being disseminated throughout this country, it occurs in various parts of Europe, South Africa and New Zealand. In all probability scab occurs wherever potatoes are grown. In addition to the potato, turnips, carrots and beets may be attacked.

Many practical growers are of the opinion that lime, ashes, chipdirt, and other substances, cause the disease. The nature of the fertilizer used, the alkalinity of the soil may and do influence the amount of scab present on a given crop, but such agencies are incapable of producing life.

The cause of potato scab is a parasitic plant, to which the name of Oospora Scabies has been given. This plant is as dependent on certain conditions for its rapid development as the potato or root crop upon which it grows; but cannot grow in a soil unless seed of the fungus has first been deposited there. The old idea of spontaneous generation has long been exploded. We have grown beyond the thought that chipdirt can give rise to life! Experiments have shown repeatedly that scab does not develop on new land unless it is affected from some outside agency. If clean seed potatoes are used on clean land, a clean crop is sure to result. All or nearly all of the infection of new areas may be traced to diseased seed.

SOURCES OF INFECTION

When the soil once becomes infected there are two possible sources of infection in future crops, viz., the seed and the soil itself. It follows then that some soils may give scabby potatoes even when clean seed is used.

Scab thrives best on an alkaline soil. Dr. Wheeler, who has made an extensive study of the disease, summarizes his conclusions as follows: "The materials which favor scab and which are at times applied to land are: Stable manure, wood ashes, lime, magnesia and soda-ash. The materials which do not tend to make the scab worse, and which may tend to decrease it, are: Most commercial fertilizers, sea-weed, potash salts, land plaster, common salt and ammonium sulphate."

As has been pointed out, potato scab does best on an alkaline soil, that is to say it makes its most vigorous growth there. Unfortunately, potatoes also do best on a like soil; but potatoes are not so susceptible to soil conditions as the fungus. It is quite possible to grow potatoes on a soil slightly acid without materially affecting the yield, and at the same time discourage the growth of the parasite.

SULPHUR MAY BE USED

Sulphur applied to the soil gradually oxidizes with the consequent production of acid. Sulphur has been used on some soils with much success, especially on soils naturally neutral or only slightly alkaline. The process is expensive and hardly practical on large areas.

Similar acid soil conditions may be obtained by turning under some green crop, such as buckwheat. In the breaking down of this green manure, acid is formed often quite sufficient for the purpose. This system would produce best results on a neutral or slightly alkaline soil, and would not be entirely successful on a soil strongly alkaline, as the decaying crop would not produce acid enough to leave an excess in the soil. By making choice of fertilizers which do not encourage scab, by proper rotation and by turning under a green crop, a badly affected field is often cleared in a few years. Without such treatment, the fungus would remain active in the soil, without the presence of a susceptible crop for indefinite periods.

An Attractive Exhibit at the Exhibition of the Sherbrooke, Que., Agricultural Soc'ety

This exhibit was arranged by the Oka Agricultural College, La Trappe, Que. It included a few boxes of apples that had been grown in the provincial demonstration orchards.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated
The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is know as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

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6. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912....	11,144
June, 1912.....	10,945		
July, 1912.....	10,936		132,556

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912. 11,037

September, 1913 12,298

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO.

EDITORIAL

RUINOUS DELAYS

In spite of the efforts that have been made to effect improvements, several exceedingly annoying delays in the handling of fruit by the railway companies have been reported lately. Two car loads of fruit shipped from Forest that were on the road for almost double the schedule time, resulted in an almost total loss for the grower. Growers in the Niagara district, who had made shipments of tender fruit to Cobalt, learned later that they were held over in Toronto because of poor connections.

Delays of this character not only cause a deterioration in the condition of the fruit, but tend to demoralize the market and restrict future orders. Cooperation and advanced marketing methods all go for nought when the railways fail to get the fruit over the road fast enough to ensure its reaching the consumer in good condition.

Complaints made to the Railway Commission have only elicited the information that the Commission has no power to award damages for delays. Although records from one district show that delays of more or less length have been the general rule, yet the Commission has ruled that a few cars are not of sufficient importance to warrant action being taken. Apparently the only course open to the fruit growers is to bring sufficient pressure to bear upon the Government to have the necessary power given to the Railway Commision to deal with these matters. Efforts to gain needful information are being made by the Ontario Fruit Growers' Association. Fruit growers can assist by furnishing definite information to the traffic expert of the association, Mr. G. E. McIntosh, of Forest, Ont.

BETTER ACCOMODATION NEEDED

It is gratifying to note that the directors of the Canadian National Exhibition this year gave considerably more attention to the agricultural features of the fair. In the horticultural department, however, there was room for considerable improvement.

The most outstanding need was that of room. There were several exhibits, more particularly those of American railway companies, that had no rightful place in the horticultural building. Surely at an exhibition of the character and reputation of the Canadian National the important horticultural interests of the country should be given every consideration. As a result of the presence of the transportation exhibits, the vegetable displays were relegated to a tent outside where hardly one in ten of the fair visitors would think of looking for them.

Then, too, the exhibits of seed and nursery firms, while quite appropriate and interesting, should not be so placed as to break up the fruit exhibits as was the case this year. The management of the horticultural building should be left entirely in the charge of the horticultural interests. The entire showing in the building could then be elaborated on a comprehensive plan that would do justice to the important fruit and vegetable growing industry.

Encourage Successful Methods

The directors of the Ontario Horticultural Assocation are arranging to give more attention at the annual convention of the association next month, to the work of the local societies. This is a wise move. The local societies are urged to send delegates to the provincial convention. To do so involves expense. The societies, therefore, naturally ask what benefit they will be likely to receive by taking such action. When it is found that the programme is largely filled with addresses on the cultivation of different varieties of flowers they are apt to conclude that their delegates would not be likely to learn much that could be brought back and used for the benefit of their members as a whole.

Various societies in Ontario are making distinct successes of different lines of work. There is much that other societies might learn from their experience. Speakers, chosen from the more successful societies, can always impart much helpful information to the delegates from sister societies. It is well, therefore, that more attention is to be given to these matters at the approaching convention than has been the case during the past year or two. A well balanced programme will prove a source of strength to the convention.

UNEQUAL RATES

A matter of vital importance to the fruit growers of eastern Canada is that of freight and express rates to the prairie provinces. A wonderful market is developing in that great western country. While there is room for all it is only just that no section should be given more favorable rates than another. It is in this regard that the Ontario growers feel that they are getting an unfair deal.

Ontario apples are carried to Winnipeg for fifty-three cents per one hundred pounds and to Calgary for one dollar and four cents. That is, the haul from Winnipeg to Calgary costs the Ontario grower fifty-one cents. On the other hand, Washington and Oregon apples are carried to Calgary for seventy-five cents per one hundred pounds and on to Winnipeg for no additional charge. Thus the Amercan grower can cover the whole western market at the same rate. The Ontaro grower, while he has some advantage in shipping to Winnipeg, if he wishes to cover the market to Calgary must pay the one dollar and four cents rate. This is a matter that should be brought to the attention of the Railway Commission at the earliest opportunity.

In deciding to hold the Ontario Horticultural Exhibition this winter in connection with the proposed National Live Stock, Dairy and Poultry Show, the management of the exhibition should be on their guard to see that they are not led into a position from which it may prove difficult to retreat. The control of the Horticultural Exhibition must not be allowed to pass into the honds of a general committee charged with the direction of a larger venture of which the Horticultural Exhibition would form only a part. The unsatisfactory situation that exists in connection with the direction of the horticultural department of the Canadian National Exhibition illustrates how disastrous such a change might prove. The date of the exhibition this year was set back a week later than usual at the request of the management of the larger show. Other similar concessions in the future might easily cripple what is now a very successful horticultural exhibition.

PUBLISHER'S DESK

The front cover illustration of this issue has been made once more from a photograph of a Pacific Coast orchard. For some reason we are unable to explain the fruit growers of British Columbia take more interest in obtaining good photographs of their orchards and the work conducted therein than do the fruit growers of the east. We generally have plenty of good illustrations of western orchards on hand, but frequently find it difficult to obtain ones equally as good from Ontario, Quebec, or the Maritime Provinces. There are plenty of good orchards in all these districts. One reason western orchards are receiving the attention they are at the hands of the public may be found in the greater enterprse of their owners in this respect.

There is nothing special about this issue of The Canadian Horticulturist. Nevertheless we believe that our readers will find that it is a strong issue from cover to cover. Our back pages are a little more full than usual with reports of the fall exhibitions, but this is only what is expected to be the case at this season of the year. Our November issue will also be a strong one.

A number of the regular advertisers in The Canadian Horticulturist showed their confidence in their goods by making large displays at the Canadian National Exhibition. The many people who examined these exhibits learned much that was helpful and of interest. In this issue a number of these exhibits are described. Our readers will find a perusal of them interesting.

Our plans are already being laid for next year's issues of The Canadian Horticulturist. Many of Canada's greatest authorities in fruit, flower, and vegetable growing are being engaged to contribute articles prepared especially for the benefit of our readers. In order that this programme of articles may be made as valuable and complete as possible, we will welcome suggestions from our readers concerning topics that they would like to see dealt with, as well as special features that might be added. If you have any suggestions which you think will aid us, let us hear from you.

Transporation Committee Meet

A meeting of the Transportation Committee of The Ontario Fruit Growers' Association was held at the Toronto fair grounds on Tuesday, September 2. The report of G. W. McIntosh, of Forest, who had been appointed by the committee as transportation agent, contains interesting informaion. The committee had asked the railway board for the privilege of free slatting of cars and a stop-over privilege. The board considered that the stop-over privilege was a special one which they had no power to grant. Shippers will be granted $3 per car recompense for slatting. Railway companies have raised the minimum car load on refrigerator cars from five to six tons.

An effort will be made to have the awarding of damages on spoiled fruit come under the jurisdiction of the railway board. The question of reciprocal demurrage is another matter that will be pushed. The rates on fruit shipped to the west are far from satisfactory. British Columbia can send apples from Calgary to Winnipeg at lower rates than Ontario apples can be shipped from Winnipeg to Calgary. The whole question of rates will be referred to the Railway Commission.

SOCIETY NOTES

Guelph

"One of the most successful horticultural shows ever held in the county of Wellington," was the unanimous opinion of those who attended the flower, fruit and vegetable show held in the City Hall, Guelph, on August 19th and 20th, under the auspices of the Guelph Horticultural Society and the South Wellington Sweet Pea Society. This was the first attempt for upwards of thirty years to hold a summer show in Guelph, and the results must have been most gratifying to the officers and executive of the societies. Both the halls, which were tastefully decorated for the occasion, were required to hold the many exhibits in classes covering almost every variety of flowers (annual and perennial), splendid displays of plants including many rare specimens exhibited and loaned by prominent citizens, and the exhibits of fruit and vegetables.

The fine display of plants in pots, the beautiful collection of gladioli, roses, petunias and other flowers, as well as the fine collection of vegetables and fruit by the Ontario Agricultural College, were perhaps the most striking exhibit, while the display from the John Connon Company of Hamilton, of gladioli and perennial phlox, and the exhibits by Messrs. Gilchrist, Dunbar, McPhee, Marriott, and "The Rosery," local florists, were also worthy of special mention.

The competition for the handsome Burpee Cup and the valuable Schofield Cup, the former offered by Messrs. .W A. Burpee & Co., of Philadelphia, and the latter by H. C. Schofield, Esq., M.P.P., both given for the best and most artistic displays of sweet peas, was very keen. The magnificent display of J. A. Hewitt was awarded the former, and the fine exhibit by William McSkimming, the later.

Amongst the most prominent prize winners were: Samuel Sunley, McLennan & Billings, Miss L. Yeates, T. Holliday, Fred Webb, William Wilson, George Leadlay, Peter Gould, John Malcolm of Fergus, Geo. Ruber, A. Duffield. The silver medal kindly donated by the Toronto Horticultural Society for the best collection of herbaceous perennials, was won by Miss L. Yeates. A unique exhibit was the fine collection of peaches shown by Miss D. C. Kennedy; these were grown in Guelph from a seed planted five years ago.

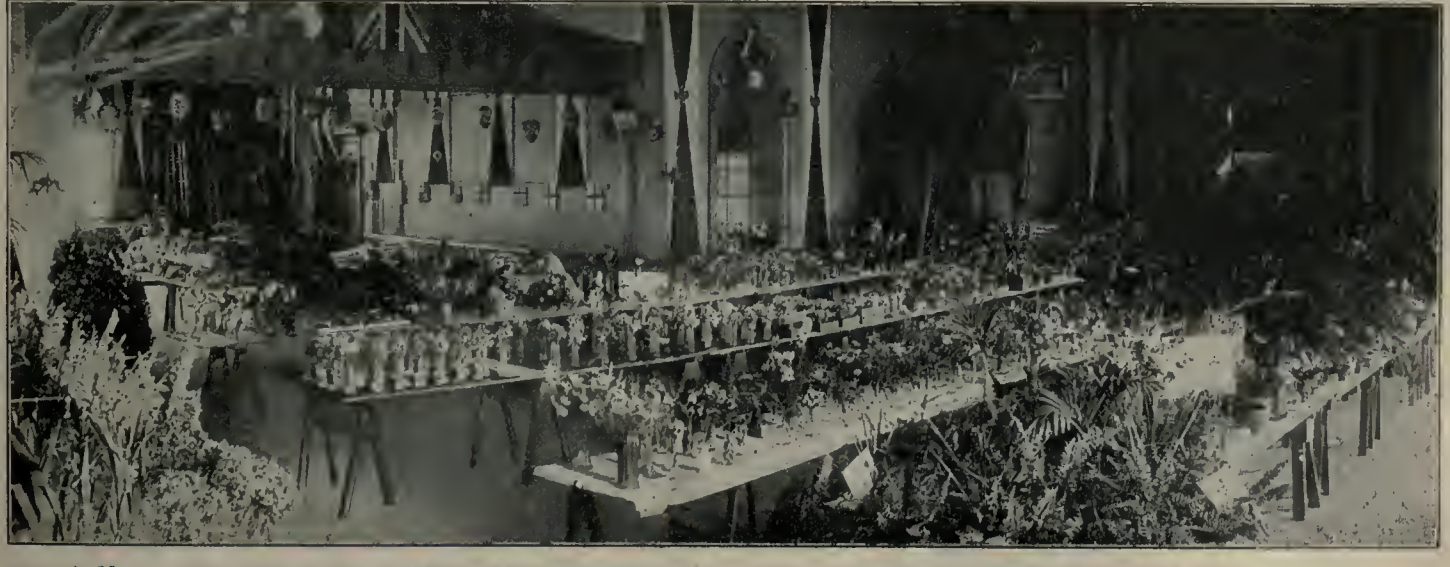
The junior members of the horticultural society and school children also contributed splendidly, covering numerous entries of flowers and vegetables.

Music was supplied continually by Cronk's orchestra, and the show was attended by over two thousand people.

London

During the past season much interest has been taken in the work of the London Horticultural Society. Premiums of bulbs and flowers were offered, which had considerable influence in increasing the membership.

During the latter week of August a successful flower show was held. Flowers of every description were shown in profusion, including some beautiful gladioli, asters, and roses.



A View of Some of the Exhibits at the Recent Exhibition held by the Guelph Horticultural Society.—(*See article on this page*)

Fruit at the Canadian National

This was expansion year at the Canadian National, and the friut exhibit was in harmony therewith. As a whole, the display was the largest ever staged at this exhibition. The size and color was the best ever seen for the time of year. In the matter of accommodation there is still room for improvement. The displays by seed firms were interesting and reliable, but they should not be so placed as to break up the fruit exhibits, as was the case this year. Then, too, the exhibits of railway and steamship companies should be confined to their proper places and the horticultural building utilized for horticultural exhibits ouly.

A change that would add to the attractiveness of the showing would be the giving of more prizes for baskets and otherwise displayed fruits. Then, too, it might be wise to drop some of the late varieties and enlarge the prize list for earlier ones. The late varieties had little or no color. A feature that would add greatly to the educational value of the exhibits and also to the general interest would be to have the name of the variety and exhibitor more plainly shown after the fruit had been judged.

Pears were of good color and quality. The plate exhibits were remarkably smooth and in most cases uniform. The showing was well above the average of past years. In baskets for display there was keen competition. One of the judges remarked that he saw some Bartletts that were as good as any he ever saw come from California. A few exhibitors made a mistake in selecting a poor color of covering for the baskets.

Plums were the best ever shown. The number of entries was large and the competition close. Peaches were of good size and extra fine color. It was evident that they caught the eye of the visitor.

Grapes were well up to the high standard set in other years.

APPLES

The display of apples was easily the best ever shown. The color was fifteen to twenty per cent. ahead of last year and the quantity almost double. The boxed fruit might easily be increased if the prize list was extended, only the standard varieties now being represented. In the arrangement of the competitive box exhibits there was room for improvement. Each exhibitor had to place his own entries, so no general scheme of arrangement was carried out. It would be well to stipulate that fruit in boxes for export should be wrapped. There was some splendid fruit shown in the box entries, one box of Duchess being particularly noticeable.

The plate and cone exhibits were exceptionally well colored. As Prof. Crow, of the O.A.C., who judged the entries, remarked: "The color is extra fine and the fruit is slightly cleaner than last year. Exhibitors, however, should have learned by this time that wormy fruit is not wanted. I didn't give any prizes to wormy fruit. A number, too, are making a mistake in selecting too large specimens of the dessert varieties. Typical apples of the variety should be chosen. In the cooking sorts, size with quality is desirable. A number of specimens were minus the stems." A pleasing feature is that more exhibitors are showing and the prize money is being more widely distributed.

COMMERCIAL PACKAGES

Mr. Harry Dawson, one of the judges on Commercial Packages, stated that never before had the fruit shown at the Exhibition been as well packed or as uniform in quality as this year. Not only apples, but plums, grapes and pears were all much better packed than in former years.

"We will soon," said Mr. Dawson, "know how to pack as well as they do in the west, and be able to hold our own even with California. An encouraging feature of the commercial packages," continued Mr. Dawson, "is the fact that there is an unusually large number of entries in all classes. Among the boxes of apples is one of Duchess, which is the best packed box of apples I have ever seen, either at this show or at the Ontario Horticultural Exhibition. It excels in uniformity of colour, uniform size of the apples and in the firmness of the pack. As regards the general exhibits, they also show more uniformity than usual, there not being so many off-packs, as most of the exhibitors have followed the 2-3 pack, the next most popular pack being the 3-4."

ONTARIO'S EXHIBIT

In the Government Building, the Fruit Branch of the Ontario Department of Agriculture had a fine display. All the fruit was exceedingly well colored, and as soon as the more perishable varieties showed signs of decay they were replaced by a fresh lot so that the showing was always fresh and attractive. An interesting feature was a box of standard dimensions, all made of glass, containing some beautiful Chenango strawberry apples. The glass enabled the spectators to view the style of pack to the bottom of the box. The peaches and plums were exceptionally fine.

Welland and Lambton counties had fine exhibits of fruits. The peaches were possibly the best at the fair. A well-loaded branch of a Welland county plum tree gave an idea of the productiveness of that district. Lambton county showed some extra fine boxed apples. The exhibit was tastefully arranged, a mirror at the back giving it the appearance of double its actual size. The British Columbia exhibit gave a splendid idea of the fruit growing possibilities of that province. The fruit was mostly shown as plate specimens. The boxes used were the North-western standard size.

SOME OF THE PRIZE WINNERS

The gold medal for the best display of fruit went to W. J. Furmiger, St. Catharines, who also got first on collections of 10 varieties pears, 15 varieties plums, 5 varieties plums (green or yellow), and 5 varieties plums (red or blue). First on fancy package, display basket, and flat-covered basket of plums, display basket of grapes and flat-covered basket of peaches were also won by Mr. Furmiger.

J. H. Corning, Waterdown, was prominent in the apple classes, winning first on export Duchess, Blenheim, Wealthy, and Spy, and on plate exhibits of Duchess, Fameuse, Gravenstein, Hubbardson, Wealthy, and Spitzenburg; also first on 20, 10, and 5 varieties cooking apples and for pyramids of Blenheim, Duchess, King, R. I. Greening, St. Lawrence, and Wealthy.

Other prominent exhibitors in the apple class were W. E. Weese, Carrying Place; J. Guthrie, Dixie; R. Williamson, Carrying Place; and T. Bunting, St. Catharines.

A. E. Freel, Niagara-on-the-Lake, was first in all peach collections. In grapes, similar honors were won by L. Haynes, St. Catharines. Other prize winners were: W. D. Woodruff, St. Catharines; A. W. Austin, Port Dalhousie; F. G. Stewart, Homer; and R. Cameron. The prize money in the plum classes was well divided.

Fighting San Jose Scale in Ontario

Jas. A. Neilson, Port Dover, Ont.

During the past spring the Fruit Branch of the Department of Agriculture engaged the writer to undertake the work of investigating the prevalence of the San Jose Scale in the orchards of Ontario. As a result of the work, which began April 21, we have found the San Jose Scale to be rather widespread, especially in the south-western part of the province. The pest has been found in the following counties: Oxford, Middlesex, Lambton, Essex, Kent, Elgin, Norfolk, Welland, Lincoln, Wentworth, Halton, and Peel.

The San Jose Scale is one of the worst pests that the fruit grower has to fight, but fortunately it can be controlled. From observation of a number of orchards, previously infested, we have found that this very destructive pest can be completely overcome by spraying the affected trees with the lime-sulphur mixture. The spray should be applied on the dormant wood, before the buds break open in the spring or after the leaves drop off in the autumn. If the trees are badly affected the rough bark should be scraped off and the trees rather severely pruned. It is absolutely necessary to be very thorough in the spraying of the trees. Every branch, and even the smallest twigs should be covered with the spray mixture.

This is rendered necessary by the marvellous powers of reproduction which the San Jose Scale possesses. One female in the course of a season is capable of bringing forth offspring which will multiply to one million. From this fact we can see the necessity of being thorough in the spraying, as even the smallest twig left untouched will reinfest the whole tree.

CONCERTED ACTION NECESSARY

To secure the best results in an infested area, concerted action is necessary on the part of the fruit growers. Unless this is secured, the efforts of those who do spray are to a certain extent rendered ineffective. From interviews with a large number of fruit growers, we have found that compulsory spraying would be welcomed by many, especially in sections where the San Jose Scale is prevalent. Competent inspectors should be appointed to see that the negligent ones do their duty.

Fruit growers should keep a sharp look-out for this pest, as it is much easier to control in the initial stage than when it has become established. The San Jose Scale is spread in the first place chiefly on nursery stock; therefore growers should deal only with reliable nurserymen. Birds and insects also carry it from tree to tree and from orchard to orchard.

The Department of Agriculture will furnish upon request a spraying calendar, giving full and complete directions for spraying for the San Jose Scale and all other fruit pests.

Peaches, plums and other soft fruits are not susceptible to being preserved for any length of time in cold storage. The best that can be done is to keep them in a firm condition for transportation and marketing at reasonable distances.—J. A. Ruddick, Dairy Cold Storage Commissioner.

Queens of Moore's Strain of Italians

PRODUCE WORKERS
That fill the supers quick,
With honey nice and thick.

They have won a world-wide reputation for honey-gathering, hardiness, gentleness, etc. Untested queens, $1; six, $5; 12, $9.00. Select untested, $1.25; six, $6.00; 12, $11.00. Safe arrival and satisfaction guaranteed. Circular free.

I now have 750 nuclei and am filling orders by return mail

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HOMES FOR BOYS, aged three to ten years. For further particulars apply to THE SALVATION ARMY, 20 Albert St., Toronto, Ont.

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Write for catalogue on Spraying and Evaporating

A High-Grade Nursery Exhibit

Among the Nursery Exhibits at the Canadian National Exhibition, that of Ross & Sons appeared to good advantage.

The Toronto Nurseries is one of the oldest and best known nursery firms and landscape architects in Canada to-day, having been established in 1845.

The foreground of the display consisted of a plot of grass laid out attractively with tub specimens of evergreens of the best varieties. In the background was a tent which was used as an office. This also was nicely decorated with landscape plans and illustrations of nursery stock.

The Evergreen stock consisted of splendid specimens of Juniper Virginiana, Japanese Juniper, Irish Yews, Theodore Cedars, Veitch's Spruce, Abies Polita, Pyramidal Cedars, Colorado Blue Spruce, and Retinospora.

In addition to the exhibit of evergreens, a splendid collection of standard two-year-old fruit trees was offered for inspection.

Ross & Sons, in addition to their nursery business, make a speciality of landscape department work, in which they have been engaged for many years. Plans and estimates are furnished on application.

They are also the Canadian Representatives of Hugh Dickson & Co., of Ireland, the famous Irish rose growers. They recommend the fall as the very best time for planting roses, and to meet the demand they have prepared a very fine stock of high-grade plants. A large supply of all kinds of nursery stock is on hand for Fall and Spring delivery, and orders will be promptly attended to.

Visitors are always accorded a cordial welcome at the nurseries—1167 Queen St. East, Toronto.

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Irises
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Etc., Etc., Etc.

Will be filled promptly and planting may still be done successfully.

Fall Planting List sent Free on request

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Vegetable Displays at C. N. E.

The showing of vegetables at the Canadian National this year was well up to the standard set in past years Owing to the presence of a number of commercial exhibits in the horticultural building, the vegetables were relegated to a tent. Under such circumstances it was not possible to show the entries to the best advantage.

The arrangement of the exhibits is always an important point. In this respect there was little fault to find, the entries not being mixed as to class. While the quality of the entire showing was good, some of the roots, particularly turnips and mangels, showed some roughness. The season, however, has in a large measure been responsible, as such dry weather is not conducive to the best development of the root crop. The display of squash was most creditable, the specimens being notably well formed.

Among the chief prize-winners were: Wm. Marshall, Falkenburg; R. Plunkett & Sons and C. Plunkett, Weston; J. B. Guthrie, Dixie; J. P. Helliwell, Brown Bros., J. Dundridge and F. Reeves, all of Humber Bay; W. D. Woodruff, W. J. Furminger, St. Catharines; W. Clark, North Toronto, and Ed. Brown, Weywood Park.

ASSOCIATION EXHIBIT

In the Government building the Ontario Vegetable Growers' Association showed a fine collection of the prize-winning entries in the field crop competitions conducted this season. The specimens were smooth and well formed. John Harris & Son, Belleville, were first on celery; J. A. Humphrey, Stratford, won first on tomatoes, and Chas. Aymer, Humber Bay, similar honors on onions.

A fine display of all farm crops gave an idea of what is being done along agricultural lines at the public institutions of Ontario. A group of exhibits that attracted much attention was the showing of vegetables and grains made by the districts of Sudbury, Algoma, Rainy River, Temiskaming and Kenora. As an example of the agricultural possibilities of these districts the showing was an eye-opener to many. Kent county, Ont., had a revolving pyramid of vegetables and grains, showing the producing possibilities of the region.

Rainy River District

The Rainy River Exhibit at the Toronto Exhibition was a revelation to many. It consisted of specimens of bush fruits, grains and vegetables. Some of the very finest agricultural products on the grounds were shown here.

Rainy River excels in the quality of seed potatoes which mature two or three weeks earlier than those grown farther south, and are absolutely free from all fungus diseases. The Rainy River Potato Growers' Association is prepared to ship any quantity of these potatoes, all shipments being carefully graded, stenciled and numbered. Further information may be secured from Mr. A. G. Crawford, Manager of the Association, Emo, Ontario.

Ginseng Growers' Meet

Some important business was transacted at the annual convention of Ontario ginseng growers, which was held in R. T. of T. Hall, 1087 Queen street West, Toronto, on September 3. The number of ginseng growers in Ontario is not large but the lack of numbers was made up for by an abundance of enthusiasm, so the convention was interesting and helpful.

After the reports of the officers had been read the main business centred on the report of the executive committee. Last year

The Call of the North

DO you know of the many advantages that New Ontario, with its **millions of fertile acres,** offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

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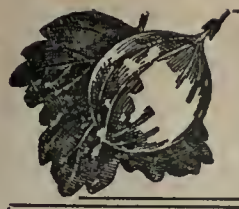

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Gooseberries, Josselyn! Josselyn!! Red Jacket, Downing, Pearl, Houghton.—Currants, Perfection, Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples Victoria.—Raspberries, Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry.—Garden Roots, Asparagus, Rhubarb. Write for Catalogne

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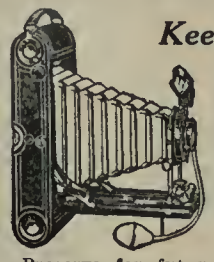

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Make sales of your stock by means of photographs; bring home ideas from other people's farms by means of photography.

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100 Choice Winter Flowering Bulbs
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We stake our reputation on this Special Bargain. The most careful buyer cannot select better quality or get more for the money. The plants are all thrifty and healthy; of full blooming size, and such only as will do well in the ordinary home atmosphere. The bulbs are those that are sure to bloom and thrive and give delight to the inmates of the home all through the long Canadian winter. Send us $5.00 and we will express to you as follows:

PLANTS

1 Choice Ostrich Plume Fern.
1 Fine Boston Fern.
1 Splendid Chinese Primrose.
1 Beautiful Cyclamen.
1 Rare Begonia.
1 Fine Cineraria.
1 Strong Asparagus Fern.
1 Large Kentia Palm.

Our regular selling price of these plants will average 50c each, and some of them we retail at One Dollar each.

BULBS

12 Early Narcissus Paper White.
12 Early Roman Hyacinths.
12 Freesia Mammoth size.
(The above are for early Xmas bloom).
12 Dutch Hyacinths (all colors).
12 Choice Single Tulips (all colors).
12 Superb Double Tulips (all colors).
12 Double Daffodils, a choice assortment.
12 Single Daffodils, a choice assortment.
2 Chinese Sacred Lillies.
2 Bermuda Easter Lillies.

Cultural directions for these Plants and Bulbs are found in our Catalog, which we mail free.

The above bulbs will give continuous bloom until Easter. Catalogue prices of these bulbs is $4.00.

This Order is Not Good after December 15th.

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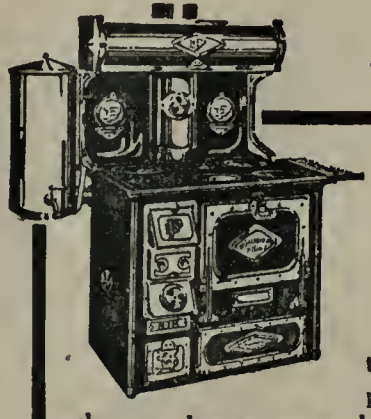

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Every Range is unconditionally guaranteed.

Dominion Pride Range

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It's as good as seeing the range to read the complete and clear description in our book. The book also contains a history of cooking worth reading. Let us send you a copy.

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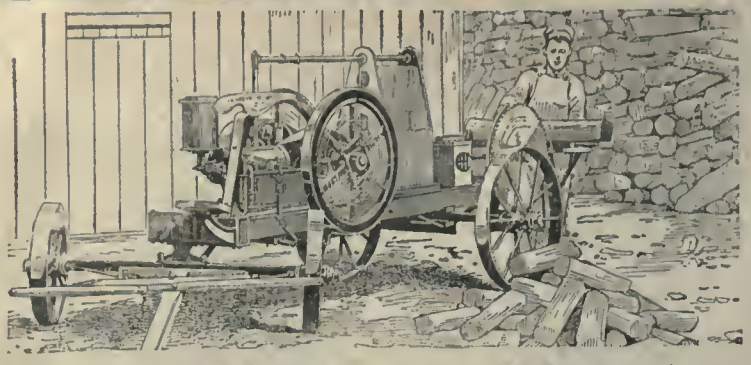

Buy a Mechanical Drudge

MANY a winter day of back-breaking labor has the average farmer spent stooping over the old buck saw, zr-r-p, zr-r-ping its way through tough wood for the kitchen stove supply. But the wise ones don't do it now. They have a handy engine to run the saw, while they rest.

That engine is about the busiest and most convenient machine the wise man has on his farm. It pumps water for him, runs the separator, washing machine, feed grinder, and grindstone. Often it runs a hay press, small thresher, or a repair shop. The year round it drudges for him. And the wisest man has an

I H C Oil and Gas Engine

because it does most for him at least cost. Its simplicity renders it almost trouble-proof. Its construction makes it easy to start and to operate, and it is most economical in fuel consumption. The best material obtainable goes into its making.

I H C engines are made in all styles—vertical and horizontal, portable, stationary and skidded, air and water cooled. Pumping, sawing and spraying outfits. Sizes from 1 to 50-horse power, to operate on gas, gasoline, naphtha, distillate, kerosene, and alcohol. Oil tractors, 6-12 to 30-60-horse power, for plowing, threshing, etc.

The I H C local agent will show you the engines and tell you all about them. Get catalogues from him, or write the

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Hanging Baskets, Ferns Pans, Etc.

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who specialize in APPLES and PEARS during the Season. Personal attention, prompt account sales and remittance

Correspondence invited

the committee had been instructed to investigate the possibility of marketing the product by the association direct to the dealers in China. The committee reported that the scheme was quite possible. They got into communication with the Canadian Commissioner in China who was investigating the condition of the market there as to prices, grades and firms handling product. At present the market is somewhat demoralized because dealers can get advances from bankers.

The erection of a central drying plant, where the roots shipped by the members could be properly dried and prepared for market, was also decided upon. The selection of the location and other arrangements were left in the hands of the executive committee. A canvas of the members had been previously made by mail so a decision was soon arrived at.

An application had been made to the Ontario Department of Agriculture for a grant to enable the association to better study the habits of the plant. Hon. Mr. Duff had promised consideration.

The methods of growing the plant, amount of shading, mulching, and spraying for blight were among the subjects discussed.

The officers for the coming year are: President, J. A. Austin, Toronto; 1st vice-president, D. Menzies. Milton. Ont.; 2nd vice-president, W. J. Robertson, Lanark, Ont.; Sec.-treas., P. Wilson, 91 Evelyn Ave, Toronto; members of Executive, P. Menzies, Milton, Ont., and J. Watson, Newmarket, Ont.

Government Exhibit

An exhibit that attracted attention at the recent fruit and flower show at St. Catharines was that of the Dominion Government. This was about one-fifth of the exhibit which will be shown at San Francisco in 1915. In all, four hundred and fifty glass jars will be shown. The fruit is all being collected in the Niagara district by Mr. Desbardes, who has entire charge. A large proportion of it is shown on the branch, giving an idea of the prolificness of Canadian fruit trees.

The jars used are both of the cylindrical and globe-shaped type, containing from one and a half to nine gallons. The composition of the preserving material is not made public, but except in the case of vegetables no alcohol is used. The process is an interesting one. The fruit goes through three solutions. The first discolors the fruit, the second bleaches it and the third brings back the original color. A lot of this preserved fruit is being shown in the Old Land to illustrate that Canada is not "Our Lady of the Snows." During the past season a large exhibit has been staged in Belgium.

Mr. Desbardes remarked that the fruit compares favorably with the California product, and in flavor would beat it, especially peaches. An interesting novelty was a second crop of raspberries, growing on the new wood, which Mr. Desbardes had found in a nearby garden. One jar contained a specimen of tobacco plant grown a few miles from St. Catharines. It was grown from Havana seed, and was suitable for cigar wrappers.

Niagara District

The season in the Niagara district is in some respects a rather unusual one. In the first place, peaches and plums are a heavy crop, the quality being the best in years. While prices have not been high (to the grower at least), the gross returns are remunerative because of the large

TO THE TRADE

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SPECIAL RATES TO CANADIAN NURSERYMEN.

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Iron Frame, Pipe Frame and All Wood

We Use Only The Best

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Established OF CANADA 1875

Capital Authorized - $10,000,000
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Reserve and Undivided Profits - - - 8,100,000

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Presenting *two* ways to get up early

Big Ben will get you up *on the installment plan*, a little at a time, by ringing every other half minute for ten minutes, so you'll wake up *gradually*. Or he'll do the whole job all at once, with one long, straight, five-minute ring.

You can set him to do it as you choose, and *shut him off short* in the middle of his call either way.

That makes him *two good clocks in one*, to suit everybody's taste in early rising.

He plays no pranks. He won't go off before it's time and rob you of your full measure of sleep. He won't go off behind time and rob you of your work time. It's Big Ben's business to run on time, to ring on time and to stay on time.

Big Ben attends to his own business and helps you attend to yours by getting you and the farm hands out early.

Then he sticks around the house and keeps time all day for the women folks so they can have your meals on time.

There never was a clock that fitted in better with the farm work.

He's triple-nickel plated and so handsome you'll want to keep him in the parlor instead of a bedroom.

Stands seven inches tall from the top of his head to the tips of his toes; has big, easy-winding keys, large hands, and big figures that you can read at a distance on dark mornings, and is built of good implement steel so he'll last for years. He's doing this kind of work in 3,000,000 American homes today.

Twenty thousand jewelers sell him—one in your neighborhood, probably. If yours doesn't, just send a money order for $3.00 addressed to *Westclox, La Salle, Illinois, U. S. A.* and he'll come to the front door, duty charges prepaid.

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OUR facilities enable us to realize top prices at all times for your fruit, vegetables, or general produce. Aside from our large connection on the Toronto market, we have established branch warehouses with competent men in charge, at **SUDBURY, NORTH BAY, COBALT, COCHRANE AND PORCUPINE.** In time of congestion on the Toronto market we have a ready outlet through these branches. We never have to sacrifice your interests.

Branch Warehouses: Sudbury. North Bay, Cobalt, Cochrane and Porcupine

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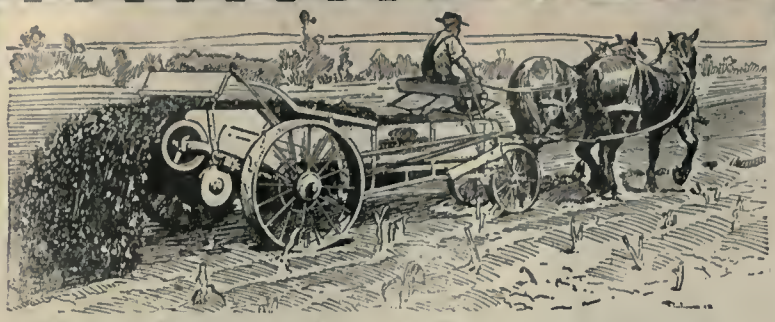
References: The Canadian Bank of Commerce, (Market Branch) and Commercial Agencies.



Best-Hated of Farm Tasks

ON the spreaderless farm the thought of the great heaps of manure piling up constantly in barn yards, stables, and stalls, is a gloomy one. Those piles mean much disagreeable and hard work. Three times every bit must be handled. It must all be loaded onto high wagons. It must be raked off in piles in the fields. Then every forkful must be shaken apart and spread.

Compare that old-fashioned method with the spreader-way. You pitch the manure into the spreader box, only waist high, drive out and—the machine does all the rest.

And, far more important, if you buy an I H C spreader, one ton of manure will go as far as two tons spread by hand, with the same good effect on the soil, and it will all be spread evenly.

I H C Manure Spreaders

Deering and McCormick

are farm necessities. The man who uses one will get the price of it back in increased crops before its newness has worn off

I H C spreaders are constructed according to plans in which every detail, every feature, is made to count. They are built to do best work under all circumstances, and to stand every strain for years. They are made in all styles and sizes, for small farms and large, low and high machines, frames of braced and trussed steel. Uphill or down, or on the level, the apron drive assures even spreading, and the covering of corners is assured by rear axle differentials. In all styles the rear axle is placed so that it carries near three-fourths of the load. This, with the wide-rimmed wheels with Z-shaped lugs, makes for plenty of tractive power. Winding of the beater is prevented by large diameter and the beater teeth are long, strong and chisel pointed.

A thorough examination of the I H C spreader line, at the store of the local agent who sells them, will interest you. Have him show you all these points and many more. Study the catalogues you can get from him, or, write the

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At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.

Sprayers

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For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

Send for Catalogues and particulars to : **VERMOREL** Manufacturer, VILLEFRANCHE (Rhone), FRANCE

Lovely Old English Flowers

Hardy and True to name

KELWAY & SON

The Royal Horticulturists

Langport, Somerset, England

GINSENG

For the season of 1913 we are offering one-year-old Roots two-year-old Roots, Stratified Seeds and New Seeds at greatly reduced prices. Write for Price List.

I. E. YORK & CO., Waterford, Ont.

crop. In spite of the heavy yield and reasonable prices, the canners are buying but little, one cent a pound being about the maximum figure offered. Heavy stocks are on hand from last year, which accounts for the light buying.

The scarcity of fruit baskets still continues to be the growers' nightmare. A number claim that orders for baskets put in a year ago have not yet been filled. At the same time the cost of baskets has advanced from 25 per cent. to 50 per cent. above last year's level. In not a few cases fruit is rotting on the trees because of the lack of baskets in which to ship it. This is particularly true of Lombard plums.

Can any reader supply us with copies of The Canadian Horticulturist for April, May, June, and July, 1913? If they will send them to us we will be pleased to allow for them what they may be worth.

THE NEW PRE-COOLING PLANT

An innovation that should prove of great benefit to the growers of this district is the new Government pre-cooling plant, tenders for which have been called for. The building, which will be situated beside the G.T.R. tracks at Grimsby, will be 120 feet by 48 feet. In the basement will be a storage room, a coil room, an experimental room, and a receiving room. On the first floor will be the ice crushing and elevating machinery, two pre-cooling rooms, an air-lock room, a shipping room and office. On the second floor will be two coil rooms and storage for cases. Above the ice house will be five primary tanks, a room for ice and salt, and large storage for salt. The entire plant must be completed by January 15, 1914.

Complaints of long delays in shipments, particularly to the West, are numerous. In some instances the time in transit was so long that fruit arrived at its destination in an almost worthless condition. G. E. McIntosh, Transportation Agent of the O.F.G.A., is collecting concrete evidence that will be placed before the Railway Commission when the whole matter will be carried to that tribunal.

Prince Edward Island

That "The Garden of the Gulf" is no misnomer was proven at the first flower show held under the auspices of the Prince Edward Island Floral Association at Summerside during the last week in August. Prof. Saxbey Blair, of the Kentville Experiment Station, N.S., who with Rev. S. Trivett, Milton, N.S., judged the exhibits, stated that the show compared favorably in cut blooms with any he had attended in Ontario and Quebec.

The show was formally opened by His Honor the Lieutenant-Governor, the Commissioner of Agriculture presiding. The sweet peas shown were an exceptionally fine lot, Prince Edward Island's soil and climate seeming to be peculiarly favorable for this flower. Dahlias and phlox were also displayed extensively. Asters and carnations were not so numerous, as the season has not been favorable for their growth. Roses were a creditable showing for the time of year. Some of the prominent exhibitors were J. H. Wormacott, L. G. Haszard, J. D. Stewart, and James Tait. The committee in charge are to be congratulated on the success attained.

McDONALD'S QUALITY BULBS

The finest blooms in Hyacinths, Tulips, Daffodils, etc., are obtained only by planting sound bulbs of good size. Our supply of Dutch Bulbs comes to us from the most reputable growers, consequently represents the cream of the best fields.

Order "McDonald's Quality Bulbs" from the following list,—you'll be delighted with results. Prices include prepayment of postage only where noted, otherwise at purchaser's expense.

HYACINTHS

Strictly 1st size bulbs for pots or glasses in any of the following colors, with names, Red, Rose, White, Blue, Violet, Yellow. 10c each. $1.00 per doz. Postpaid.

Select 2nd size bulbs. Specially fine for pot culture or bedding. Colors as above, 5c each. 50c per doz. Postpaid; or $3.50 per 100.

Dutch Roman. Miniature or Pan Hyacinths. Excellent for indoor culture. Separate colors, without names, 35c doz. Postpaid; or $2.00 per 100. With names, 40c doz. Postpaid, or $2.50 per 100.

White French Roman Hyacinths. If planted early will flower by Christmas. Each bulb produces several spikes of bloom.

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White Hawk. White	50c	3.00	20.00
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McDonald's Choice Double Early Mixed	20c	1.00	8.50
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A Unique and Practical Nursery Exhibit

Few of the thousands at the Canadian National Exhibition who passed down the roadway to the Old Machinery Hall, failed to be attracted to and inspect the splendid exhibit of Messrs. Stone & Wellington.

The firm of Stone & Wellington is the pioneer nursery concern of Canada, and is known from Coast to Coast. In past years their exhibit has been most attractive, unique and practical, but this year they certainly surpassed all previous efforts, and for general appearance ranked first among the several nursery concerns represented.

As will be seen by illustration below, it consisted of a beautiful well-built pergola, The root portion of all was extremely well developed. These trees are grown at their Nurseries at Fonthill, and serve to show the splendid class of stock they are growing for Fall and Spring trade.

The Nurseries are situated at Fonthill, Welland, where the conditions are ideal for the production of the very highest class of nursery stock It conduces to prolific yet hardy growth The specimens of two-year-old fruit trees were from six to eight feet in height, with a specially large root system, this ensuring a quick setting when planted in the orchard.

Messrs. Stone & Wellington have for this Fall and next Spring's delivery an

form of landscape embellishment which is coming more and more into favor, in the foreground. Before the two front columns were placed two beautiful specimens of Juniper Virginiana or Red Cedar, each nearly six feet in height, and between the pillars stood tub specimens of Arbor Vitae Pyramidallis. The whole surrounding ground was set out with dwarf Spruce.

At the rear of the pergola was an attractive summer house, and in front of it a well-set sun dial. The pergola was painted white and the quaint summer house in green and white. The combination of the two colors made a most pleasing display.

The whole exhibit was a sample of the high quality work of the Landscape Department of the firm.

The building was used as an office, the walls being decorated with illustrations of the shrubs, trees, etc., sold by the firm, also a number of sample plans for private and public grounds made by their Landscape Designer, who was in charge of the exhibit, and who was prepared to offer suggestions and answer all questions relative to that work.

A feature which attracted equal attention from both farmers and fruit growers, was their display of fruit tree stock. It consisted of samples of their celebrated two-year-old standard grown stock, such as apples, peaches, pears, plums and cherries. immense quantity of fruit trees such as shown at the Exhibition.

The readers of The Canadian Horticulturist who are interested in Landscape Architecture or in high-class nursery stock are cordially invited to call at the head office of the firm at 49 Wellington Street East, Toronto, or at the Nurseries at Fonthill, Welland Co.

St. Catharines Exhibition

The Fruit and Flower Show held by the St. Catharines Horticultural Society on September 10 and 11 was easily the best in the history of the organization. The fruit growers are taking a keen interest in the workings of the Society, and were in evidence with a grand display of fruit. Special attention was given to the children, a fine display of asters being made by them from seed distributed by the society. On both days the attendance was large. Hon. Martin Burrell, Minister of Agriculture, formally opened the show.

Apples were displayed almost entirely as plate exhibits, only five boxes, each of a separate variety, being shown. On the whole the plate exhibits were good. A few, however, showed lack of knowledge on the part of the exhibitor as to what constitutes a first-class plate exhibit. The apples were not uniform in size or shape,

and some showed blemishes. Decorating the apple tables were gladioli supplied by Gilchrist, of Toronto.

Pears were a fine lot. The specimens were smooth and well formed. The basket displays were a grand lot.

Peaches were simply grand. The quality could not possibly be excelled. The showing was one of the finest ever seen in this county.

The plums were on a par with the peaches. The season has been especially propitious for the ripening of the fruit.

Grapes were hardly ahead of other years. The showing was good nevertheless. Dr. Merritt won all the prizes for grapes grown under glass. W. Furminger was a heavy winner in all the classes. C. A. Griffs took the lion's share of the peach prizes. Some of the other winners were: G. A. Robertson, W. H. Bunting, Dr. Miller, W. R. Sheppard, and J. A. Wood.

In the preserved fruits the ladies did themselves credit. The jellies were hardly as good a display.

An interesting exhibit was the collection of preserved fruits which Mr. Desbardes is collecting to represent Canada at San Francisco in 1915. Single fruits and fruit on the branch are placed in preservatives in variously shaped glass jars. As yet, only the early fruits have been prepared

FLOWERS

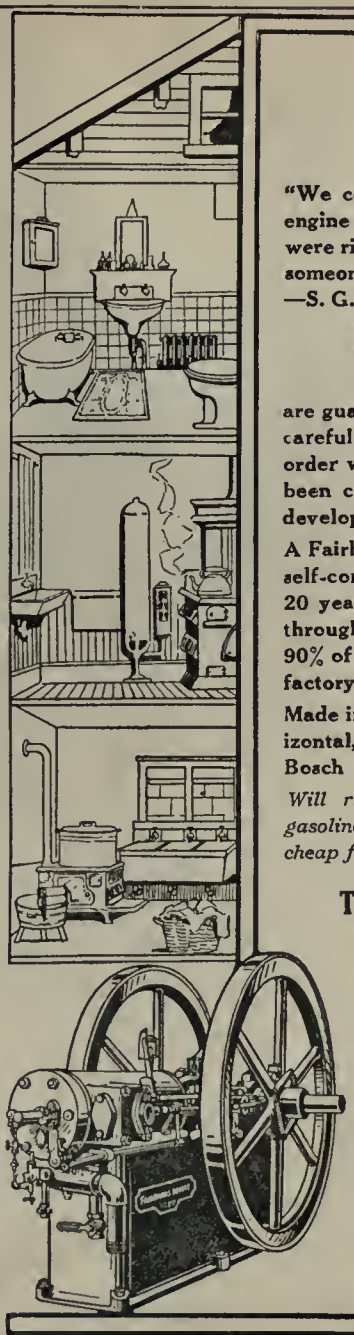
The display of flowers was fine, both in the professional and amateur classes. Two car loads of foliage plants were contributed by Mr. Moore, of Victoria Park, Niagara Falls. Some notable specimens were: Monkey's Purcell, a crape myrtle from India, a navel orange tree, two century cactus, and some fine sago palms. Some splendid Gladiolii were shown in the competition for the special prize donated by Mr. Childs of New York. A very nice collection of plants was that shown by Major Leonard. The children of Alexander School had a splendid display of vegetables and flowers. Dr. Merritt won the larger proportion of the prizes in the foliage plant classes. R. L. Dunn exhibited a splendid collection of plants, valued at $500.

A special class put on for the children was the decorating of doll's carriages and table decorations. The youngsters showed considerable originality. The ladies turned out some good work in the dinner table decorations.

An interesting feature of the evening sessions was a flower drill by a number of school girls. The regimental band rendered some fine selections.

Canada's Land and Apple Show

Every effort is being put forth to make Canada's first Land and Apple Show, to be held in Winnipeg October 10 to 18, one of truly national character. Visitors will have an opportunity to view the products of all agricultural districts. Among the features there will be an "Ontario Day," a "British Columbia Day," a "Maritime Province Day," a "Prairie Province Day," etc. On these days it is intended to give away to visitors cartoons in the form of some product of the land. As these cartoons will be in the nature of an advertisement, the management expect the cartoon souvenir to be supplied by those directly benefited. This show will afford an excellent opportunity for those of the various parts of the country to see what others are producing. The prairie provinces are furnishing an ever-increasing market for Canadian fruit. Now is the time to show the Western consumer what our country's fruit districts have to offer.



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A Greenhouse Exhibit

One of the most interesting of the horticultural exhibits at the Exhibition was that of The Lord & Burnham Co., Ltd., of Canada, with a complete and full sized curved eave greenhouse, 18 feet by 25 feet, with a service building 14 feet by 20 feet attached to the rear. This greenhouse represented their standard greenhouse construction, description of which follows:

The superstructure rests on an eight-inch concrete wall, which extends about 2 feet 6 inches above level of the house. This wall is capped with a combination cast iron sill and gutter. The gutter has a large part of its surface exposed to the inside temperature of the house, and thus readily frees itself from snow and ice.

Springing from the sill are the steel rafters, placed 8 feet 4 inches apart. Three lines of angle steel purlins on each side of the roof equally placed between the rafters secures a rigid frame and firm support for the bars and glass in the roof. The steel framework is so designed that none of the metal is exposed to the outside atmosphere, thus ensuring freedom from damage by the continual expansion and contraction of the metal, from sudden changes in temperature.

All wood used throughout is clear air-dried Gulf Cypress.

All members in the construction are secured in position with bolts or screws, which practically makes a portable structure. A glance at the illustration will show you that the eaves are curved. This feature adds a very graceful and attractive appearance to the greenhouse, and also ensures a roof free from snow, as there is no gutter or other member at this point.

Two lines of ventilating sash are placed at the roof, and are operated with Lord & Burnham Company's patented ventilating machinery, which furnishes ample ventilation under all conditions.

The plant beds are constructed throughout of cast iron, which makes them strong and practically indestructible.

The glass used in glazing is 16 inches wide, of good quality.

The Lord & Burnham Co. is an old and well-established firm, and are to-day the largest builders of greenhouses in the world.

The Lord & Burnham Co., Limited, of Canada, has lately been organized to manufacture and erect greenhouses and handle greenhouse supplies in Canada.

For information, communicate with the Lord & Burnham Co., Ltd., of Canada, 12 Queen Street East, Toronto, Ont.

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Tulips, Single, choice mixed, all colors	25c	$1.25	$10.00
Tulips, Single, good mixed, all colors	20c	$1.00	$8.00
Tulips, Double, named, 6 colors	35c	$2.00	$17.50
Tulips, Double, choice mixed, all colors	30c	$1.50	$12.50
Tulips, Double, good mixed, all colors	25c	$1.25	$10.00
Tulips, Parrot, mixed, all colors, late	25c	$1.25	$10.00
Tulips, Darwin, mixed, all colors, late	35c	$2.00	$17.50
Tulips, Darwin, named sorts, 6 colors	50c	$3.00	$27.50

Also a full assortment of Bulbs for Winter Blooming in the house, and Spring Blooming in the garden, such as Crocus, Freesia, Hyacinth, Lily, Narcissus, Snowdrop, Scilla, etc. Also Plants, Seeds of all kinds, and Poultry Supplies.

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JOHN A. BRUCE & CO., LIMITED Seed Merchants Established 1850 **HAMILTON, ONT.**

The Canadian Horticulturist

Vol. XXXVI NOVEMBER, 1913 No. 11

Hints to Box Packers

E. T. Palmer, Ont. Dept. of Agriculture Toronto, Ont.

PACKING is placing fruit of the same size solidly in boxes in such a manner as to insure uniformity of appearpearance, neatness and protection from bruising. The purpose of careful packing is to make the box of fruit as attractive as possible to the purchaser, and obtain thereby for it the highest possible price. The few hints here given are intended as a help and a guide in obtaining a good commercial pack.

The 2-2 Diagonal Pack. Fig. 1.

I would emphasize first the point that only neat and clean boxes of properly guaged lumber should be used. It is a faulty plan to use packing boxes "just once" for packing the fruit in.

If the fruit is not to be wrapped it is advisable to line the box with lining paper cut especially for this purpose. Two pieces are required for each box, and in placing the paper in make allowance for the bulge on the box after it is nailed up.

A convenient packing table is important. The surface area of the table should not, as a rule, be greater than three feet by four feet, as anything larger will not allow two packers to reach all points of it without unnecessary stretching. Larger tables may be used if there are four packers to a table, but as a general rule their use is to be avoided. There is too much fruit in one pile, and furthermore two packers at one table can work to better advantage than can four.

THE METHOD

The fruit should be carefully graded before packing, particularly for inexperienced packers. Good packers, too, will do better and faster work where this is done. Unless the fruit is sized properly it cannot be made to fit evenly and snugly. It is essential that a man be able to size an apple properly, else he will never make a packer. One should grade for color as well as size and freedom from blemish.

Stemming the top and bottom layers of the box is a practice that has been given more prominence than it deserves. When apples are being packed in barrels stemming is quite possibly an economic operation, but for box packing, where practically half the apples would have to be stemmed, it is not—it is too costly. It means an increase of approximately one-third in the cost of packing. Rather than stem the apples for the top and bottom tiers, pack the fruit calyx-end up or on its side.

Space will not permit of a discussion of styles of packs. The accompanying illustrations show the principal style, the diagonal, figure one, shows a two-two diagonal pack, and figure three, a three-two diagonal. The other two principal styles of packs, the straight and offset, are defective, and should be avoided. But remember that the style of pack is not so important as having the fruit packed well. That is a uniform, neat and attractive pack with the least amount of bruising possible. Vary the style of pack to suit the shape and size of apple so that the fruit may always be shown to advantage in a good commercial pack. It becomes almost absolutely necessary to use such packs as the riff-raff and offset at times, as certain sizes and shapes of apples will not pack to advantage any other way. But, as previously stated, such packs are defective and therefore to be avoided whenever possible.

ESSENTIALS OF A GOOD PACK

Whatever the style of packing used—whether it is straight, diagonal or offset—the essentials of a good pack—firmness, regularity, correct bulge, smoothness and finish—should be kept constantly in mind by the packer. The pack must be so firm that there is no chance for the fruit to shift in any way. To prevent this it is almost necessary that each apple touch all those surrounding it in the proper way. This means that one style of pack, and practically one size of apple, must be used throughout for each box. On no account should a box be started with one size of apple and finished with another, nor should the style of pack be changed, otherwise unnecessary bruising is almost sure to result.

PROPER BULGE

Proper bulge is one of the hardest things for a beginner to secure. A bulge of one and a quarter to one and one-half inches, counting both top and bottom, is sufficient. A bulge of two inches or more is unnecessary and undesirable, as the fruit is more liable to be bruised. As bulge is an important point and one

A 3-2 Diagonal Pack. Fig. 2

This was the sweepstakes box, packed by the Norfolk County Fruit Growers' Association and shown at the Ontario Horticultural Exhibition in 1912.

Grading and Packing
Orchard of Charles Patchett, Cooksville, Ont.

of the hardest for the beginner to master, it will be dealt with more in detail.

In the straight pack, before the lid is nailed on, the apples at either end of the box should come up a little better than flush with the top. With the diagonal the ends should be a little higher—about one-fourth to three-eigths of an inch in all. Then from either end there should be a gradual bulge amounting at the middle of the box to about one and a half inches. Thus, when the lid is nailed on, there will be a bulge of practically three-fourths of an inch each on top and bottom. Less bulge is desirable with the straight packs on account of their unyielding nature. There is no settling of the apples into the crevices as in the diagonal.

The proper bulge is obtained, in the straight pack especially, by selecting apples that are a trifle smaller for the ends. With apples that are being packed on the cheek, it sometimes becomes necessary to turn the end rows flat to secure the desired bulge, and, at the same time, have the ends low enough. When it becomes necessary to do this, the ends of two layers at one end of the box, and the ends of the other two at the other end of the box should be turned, otherwise one end will be two high and the other too low.

SECURING THE BULGE

In the diagonal pack, the small spaces left at the end of each layer aid materially in securing the proper bulge. This, and pulling the apples tighter towards the centre of each layer, is sufficient to give the necessary bulge in wrapped fruit. By packing closer in the centre you close the pockets between the apples more, the next layer will not sink so deep, and, therefore, the centre is built up. The ends being left a little looser, the pockets are opened a little more, the apples drop in further and do not build up so high. Practice will give the knowledge of just how high to pack the centre or how loose to pack the ends.

When the fruit is not wrapped, this difference in firmness cannot be made and the packer has therefore to take advantage of the small irregularities and differences in size of the apples. This difference in size must not be so great as to attract attention. It is essential to begin the bulge with the first layer of fruit and to pack each layer with the same end in view.

In finding a pack too flat it is usually no use to repack the top layer, as the trouble probably extends through the box. The bulge should form an unbroken arch so that the pressure of the lid will be equally distributed over the fruit. A bulge high in the centre and dropping off to the sides will not be held firmly in place by the cover, causing the whole pack to become loose.

WRAPPED AND UNWRAPPED FRUIT

In wrapped fruit the top of the box should be packed last, while in unwrapped fruit the top is packed first. Packing the top of wrapped fruit first is a poor method and should be discouraged, as the smooth side of the wrapped fruit has to be turned down, and the consequent loose ends projecting, are very confusing to the packer, making his work considerably slower.

Only number one fruit and possibly number two of the winter varieties should be wrapped. All fruit intended for distant markets as Great Britain, should be wrapped, unless unwrapped fruit is desired, as the fruit carries much better. Wrap, too, for markets where there is no competition with wrapped fruit from other districts.

Smoothness and finish to a pack are very essential. Contrary to a fairly common belief, the box alone will not sell the apples. The high prices rely in a large measure on the appearance of the pack, which should be regular in size and perfect in alignment. If the fruit is wrapped, smoothness of wrap is of great importance.

PILE BOXES ON THEIR SIDES

Nail the lids on the boxes as they are packed, and pile them on their sides, as the sides, having no bulge, do not bruise the fruit.

Clear the packing table several times during the day so that no fruit becomes bruised from continually "pawing over."

Avoid turning the stem of one apple to the cheek of another, for the stem is likely to puncture the cheek and destroy the apple, especially for storage. This is the objection to the riff-raff pack.

When wrapping use the proper size paper for the apple. Using paper too large or too small increases the labor of wrapping, and further gives a defective pack. Use paper nine by nine inches for fruit of the general size of Snows, ten by ten for medium sized fruit—that is fruit of about two and three-quarters to three and one-quarter inches diameter. For larger fruit use ten by twelve and twelve by twelve.

Mark the number of apples in the box, rather than the tier. The designation by tiers is misleading to buyer and consumer alike.

One last point: Keep your pack above the requirements of the "Fruit Marks Act."

Why Norfolk Apples Lead

J. E. Smith, B.S.A., Simcoe, Ont.

For several years past Norfolk county has occupied the premier place with her fruit at the Ontario Horticultural Exhibition. Ever since the inception of this big fair, she has invariably had a wide margin on the remainder of the province with her splendid display of high quality apples.

The outsider naturally is led to believe that Norfolk county must be one large orchard with something exceptional about the soils and climate that gives to the fruit its high color and quality. But have you ever visited old Norfolk? When you do, you will not be impressed with the extent of her bearing orchards. The outsider must conclude after a trip through the county that it is a mixed farming district, with a slight emphasis on wheat and dairying in some of the townships.

FRUIT COMES FROM OLD ORCHARDS

True it is that large areas—even as high as five hundred acres—have been and are being set out to fruit throughout the county, but the older bearing orchards are but of a few acres such as are found almost anywhere over the pro-

Loading Apples on the Steamer at Montreal

Ontario Apples Ready for Shipment to the Western Markets

Some idea of the extent of Ontario's consignments of apples to the west may be gained from this illustration, which represents one day's shipments at Point Edward, Ont., to the west.

vince. There is, however, this difference: Norfolk farmers have learned that the small area on which their orchards stand could be made the most profitable part of their farm. It took time and patience to show this, but under the practical stimulus of Jas. E. Johnson, the energetic manager of the Fruit Growers' Association, this has been realized.

It is from these orchards, scattered all over the county, that the high class fruit is secured for the Toronto Fruit Show. How do they select it? This is done very systematically. In estimating the amount of fruit the association will have to market, notification is given where the best fruit is being produced for that season.

In doing their picking and packing in the fall, these growers are able to forward some of their best to the central storage in Simcoe where it is later carefully sorted and packed in the boxes as you see it each year at the Exhibition held in Toronto in November.

More Anent Fall Plowing

F. W. Brady, Kamloops, B. C.

I have read with interest the article on fall plowing which appeared in the October issue of The Canadian Horticulturist. As my first experience with fruit was obtained in the Cornwallis Valley of Nova Scotia, I know that with the conditions under which Mr. Blanchard writes, fall plowing may have some advantages. In the interior of British Columbia, and in the colder parts of Nova Scotia, New Brunswick, Quebec or Ontario, however, I would not advise fall plowing under any circumstances. It is directly injurious.

The practice of sowing a cover crop has become general in these colder districts. The great advantage of this cover crop is that it holds the snow, prevents deep freezing of the soil and thus protects the roots during winter.

During the winter of 1907-9, I demonstrated in the Kootenay district the benefit of having a cover crop. Of two orchards side by side, one had a cover crop the other had not—in the latter about twenty-five per cent. of the trees winter-killed. When plowed under in the fall the protection which a cover crop affords is lost. Then, too, fall plowing opens up the soil, the roots dry out, and winter killing results.

DANGER IN MILD DISTRICTS

Even in such favored sections as the Annapolis Valley or the Niagara District fall plowing has its disadvantages. If begun too early, as in September or early October, the trees may take on renewed vigor and not become fully dormant, hence winter injury results.

With cover crops which live over the spring, much additional humus is added to the soil if they are not plowed down in the fall. Although fall plowing increases the amount of available plant food it is an open question in my mind if any gain may not be lost by washing and leeching of the soil. When fall plowing is practiced the furrows are generally thrown against the trees. Quite often the soil freezes to the trunks, the bark is injured and collar rot or canker may set in. Should the orchard be in bearing it is a much easier matter to work under the trees in the spring because in the fall the branches have not had time to gain a more upright position after having been bent down with a load of fruit. Late fall or early spring spraying with concentrated lime sulphur or white wash is a much more pleasant operation when one is not obliged to drive over furrows.

A DIFFERENT VIEW

Whether or not time is saved by fall plowing is, I believe, a debatable question. More particularly when a large crop is to be handled, the energy and equipment of the grower are then taxed to the limit to get the crop picked, packed and marketed. Under such conditions it is advisable to put off plowing until the spring and begin then as early as possible.

The Fall Web Worm

A pest frequently noticed in the orchard during the month of August is the fall web worm (Hyphantria textor). This insect should not be confused with the tent caterpillar (Malacosoma Americana), which builds its nest earlier in the season. At the time when the web worm appears on the branches of the trees the tent caterpillar is in the egg stage.

Close observation will reveal that these two insects are quite dissimilar in habits. Probably the most notable difference is in the character of the web. The web of the tent caterpillar is usually found in the crotch of limbs, while that of the web worm is generally seen on the ends of the branches. The tent caterpillars remain in the web during the night, or when resting, and emerge only at feeding time. The web worm does not leave the web at all and extends the web as new feeding ground is required. For this reason the web becomes very unsightly, being filled with the cast-off skins and excrement of the insects. In feeding habits these two insects are also quite different. The tent caterpillar devours the whole leaf, while the web worm feeds only on the upper surface, giving the leaves that characteristic brown appearance.

The parent moth of this caterpillar is pure white in appearance with occasional black spots. It spends the winter in a cocoon and appears in early summer. The eggs are laid in patches on the under side of the leaves. The caterpillars emerge in July and August, and at once proceed to form their web. When full grown they are about one inch in length. They then spin their cocoon and pass the winter in this stage.

The most convenient method of combating this pest is to cut off the webs as soon as they are noticeable. As the webs are usually found at the ends of

Gathering the Apple Crop—Orchard of E. J. Hibbert, Kentville, N.S.

the branches little damage is done to the tree by removing them. Spraying with arsenate of lead or Paris green just before the caterpillars are due to make their appearance is an effective remedy, but most orchardists do not care to spray this late in the season. Sometimes enough poison remains on the leaves from the last spray for coddling worm to be effective in destroying this pest. Keeping a sharp lookout for the webs and removing them is about the only remedy necessary.

Storing Fruits

Henry Gibson, Staatsburg, Ont.

Fruit as a general thing is best when it fully ripens on the tree, but the winter sorts of course do not ripen until some time after being gathered. One cannot be too careful in gathering fruit. Careless picking and packing may show no bad results at the time, but every bruise, no matter how slight, is liable to develop into a rot spot under the first favorable circumstances, and spread ruin to the lot.

Apples and pears should be kept in a cool, dark place where the air is cool, but never wet, and where the temperature will not go below freezing. They should be stored loosely and not more than half a foot to a foot thick on slatted shelves. If such conditions do not obtain with you and they must necessarily be kept in a dry, heated place, pack, using only perfect fruit, in tight boxes or barrels, or in sand, moss, or leaf mould to prevent shrivelling.

The man in the orchard is always a good citizen

Varieties of Plums

Prof. J. W. Crow, O.A.C., Guelph

In plums, the three most profitable varieties in the best plum districts are Burbank, Bradshaw, and Reine Claude. As an early plum of fine appearance and quality, Shiro is coming into favor. Burbank is valuable for early shipment, but should not be marketed until it has attained a fair degree of maturity. If placed on the market in an immature condition, it will sell because of its splendid color, but is a disappointment to purchasers.

In cherries, the one variety of greatest value is Montmorency. Richmond is also valuable on account of its earliness, but I know of no other varieties which are worthy of extensive planting. Sour cherries, such as the two varieties mentioned, may be successfully grown in all the lake districts and throughout most of older Ontario. The sweet cherry is capable of much less extensive cultivation in a commercial way; in fact, there are very few districts in the province which can grow sweet cherries successfully in comparison with the sour varieties.

The orchard should be cultivated as early in the spring as possible.—Prof. J. W. Crow, O.A.C., Guelph, Ont.

The shot-hole borer cannot reproduce in a healthy tree. It will attack a tree lacking vigor. To prevent infection, it is a good thing to see that the dead trees are taken out before the first of April. —Prof. L. Caesar, O.A.C., Guelph, Ont.

Ontario Fruit Wins

D. E. Lothian, B. S. A.

To successful fruit growers in Ontario the announcement lately made that the province had achieved great success, first at the Cleveland, and later at the Canadian Apple Show in Winnipeg, will not come as a surprise. Time and again the provincial fruit authorities have told us that Ontario fruit so far as flavor is concerned, is quite as high, if not higher in quality than the best fruit in the West. It is still the old complaint that the only thing which deters Ontario fruit from taking its rightful place in the competitions, is the lack of care in packing, and handling the fruit before packing, on the part of those engaged in the business.

Those who were chiefly successful in the late show at Winnipeg, were W. L. Hamilton, of Collingwood, and The Bethen Break Orchard Co. of Waterdown. The Ontario government also got a first prize for their show of apples, peaches, grapes, pears and plums.

While we do not expect that Ontario growers can make any sudden change from the barrel to the box pack, in order that their fruit may compete successfully with that of British Columbia and the Western States, still we think that these results should tend to bring them around to the idea that the box is not too high a class package for well cared for fruit grown in this province of Ontario. Our best growers have no doubt long recognized this as the actual state of affairs, but commercial success is dependent not on the few recognizing the situation aright, but rather on the combined effort of the masses towards adopting cooperative packing of a high class nature.

Destroy Tent Moth Eggs Now

David Roxburgh, Montreal

For many years past we have been troubled in the early summer with the caterpillar scourge. Each successive year has proved to be more severe than its predecessor. In past years we have always been too late in dealing with this pest. As a timely suggestion now that the trees have undergone defoliation, in the case of young orchards at least, we would recommend that the egg clusters which are laid on the younger twigs of the trees, be removed.

The egg clusters are very clearly visible and appear like thickened abnormal wood growth, but when observed more closely they are found to be white, with a brownish covering. In the case of older orchards, where the branches are too high, it is probably better to wait till the early spring and to burn the tents immediately they are formed by the young caterpillars.

Seasonable Suggestions for Garden Work

Henry Gibson, Staatsburg

THERE is no time of the year that offers greater opportunities for getting ahead with the work in the garden than the fall. Work done at this season will facilitate operations when nature rouses the occupants of the garden from their winter's rest in the spring. If work is left over until then, it will probably not be done at all.

There is no better time for preparing the ground for the roses you intend to set out next spring. An open, sunny position, sheltered from boisterous winds, is an ideal location for a rose garden. Roses will do tolerably well in almost any good garden soil, but for best results a fairly strong, retentive loam, such as will keep the roots cool and moist, is essential. Spade out the soil to a depth of two feet. In the bottom place six inches of clinkers, brickbats, or other material that will ensure good drainage. Over this, to prevent the finer soil clogging the drainage, place a layer of marsh grass, hay or straw. Fill up with the remainder of the soil, to which should be added a liberal dressing of thoroughly decayed barnyard manure. Raise the bed somewhat higher than it was originally to allow for settling during the winter.

Continue to harvest vegetables, clean and spade the land. Nothing looks worse than an untidy vegetable garden. Old leaves and rubbish left lying round make the finest possible medium for insect and fungus pests to hibernate in during the winter, only to give you more trouble next year. Therefore, clean them out and save yourself a lot of needless worry, and perhaps some valuable crops.

If your garden has received large quantities of barnyard manure year after year, a good dressing of lime will be beneficial, in fact a necessity. Lime disintegrates or lets loose, as it were, valuable plant foods in the soil which are otherwise unavailable. Half a ton per acre of fine ground or air-slaked lime will be enough. Spread it on as evenly as possible, and then rake it in.

Potash manuring is indispensable if you would have your garden produce a maximum yield, but there is danger from burning if a high grade of sulphate or muriate of potash is used in the spring, hence it is better to do it now. An average of two hundred pounds per acre of either of the above-named forms of potash will be sufficient, and the harmful liming qualities will have been washed away before next growing season.

Basic slag is to be recommended as the means of supplying phosphoric acid to the soil, and it is generally conceded to be the best and cheapest means to this end. Where results are expected the next growing season, it should always be applied in the autumn. A finely ground sample is the most quickly available, and produces the best results. About one thousand pounds per acre or a little more will be all right.

These suggestions are just as applicable to the orchard and small bush fruits such as gooseberries, currants and raspberries as they are to the vegetable garden.

A View of the Calceolaria Border at the Guelph Agricultural College

Pruning of the small fruits, such as currants, gooseberries, and raspberries, should not be overlooked. This work is best performed during mild weather, and the amateur with only a small collection may easily choose his time for this. In pruning currants, the new wood should be thinned out, where it is very dense, to allow free access of light and air to the centre of the bush, the main shoots shortened back about six inches, and the spurs cut close in. Red and white currants carry their crop on spurs, and shortening back the main shoots encourages the formation of these. With black currants, however, the case is different. They bear next season's crop on the wood produced during the past season, and in pruning every effort should be made to preserve the young wood so as to replace the old which does not produce good fruit. Black currants should not be pruned to spurs. With gooseberries the spurs should be preserved and the strong ripened shoots of the previous summer retained as far as practicable.

An October Blooming Rose

This rose bush, on the lawn of Mr. R. W. Turner, Peterboro, Ont., produced some 100 blooms last summer, and bloomed again last month.

CANE FRUITS

Raspberries should have all the old canes cut away. The young canes which are to fruit next year will stand the winter all the better for the ripening they will get by the increased exposure to the sun as a result of cutting away the old canes. Raspberries that are tender

should be laid down and covered with soil for the winter.

Do not mulch the strawberries until the ground freezes. If you do the field mice will make winter quarters under the mulch and will feast on the buds, destroying next year's crop.

Likewise mulch the bed of tulips, hyacinths, and other bulbs that have been set out this fall. Do it when the surface of the beds is nicely frozen. Leaves are useful for this purpose and can be kept in place by old pine boughs.

Speaking of leaves, have you gathered any for making leaf mould for potting purposes? Do it now; you couldn't have a better time. There's lots of them blowing about just now. Collect all those that lie about the house and on the lawn, pile them up in a quiet corner where they are not likely to be disturbed by the wind. They will make fine material for using with your potting soil next year.

Then there's soil for potting purposes which you will no doubt require before the snowflakes have ceased to fly, especially if you grow plants in the house, or you happen to have a small greenhouse. Quite a few bushels may be stored under the greenhouse bench, or if you have no such structure, it can easily be kept in the cellar, and will always be handy.

The lawn, too, requires some attention in the way of protection. Last year you covered it with stable manure. This not only looked unsightly until Dame Nature came to your assistance and hid it under her mantle of white, but it left unsightly patches of yellow, where the manure happened to be rather thick, which took some time before it disappeared in the spring.

This year try some pulverized sheep manure. It is dry and pleasant to handle, and can be spread on very evenly. It does not look offensive. In the spring rake it in instead of off as you did the stable manure. Sheep manure is a valuable fertilizer, and will greatly benefit the lawn.

As long as the weather keeps open so that outdoor operations are possible, just look round the grounds and see if there are not some improvements that could be made. Is there not some track across the lawn leading to a flower bed or some shady spot where a neat path would look better than an uneven track? You can do the work yourself or supervise some unskilled laborer. There's no need to call in a professional landscape gardener. If a straight path, mark it out with a string, or if a graceful bend then use some small stakes, which can be moved in or out at will until your curves are just right.

Cut the hedges evenly with a sod edger or sod cutter, and remove the sod and soil. This can be used for the compost heap or for some bed that needs raising a little. The width of the path will, of course, depend on what it is used for, and on its harmonizing with other features of the place.

Dig the soil out to the depth of fifteen

Angels Trumpet

This magnificent plant, owned by Mr. Bernard Baker, Whitby, Ont., has born as many as fifty perfect flowers at one time. The average size was twelve inches in length and five to six inches across.

inches, place into this excavated path clinkers, coarse gravel, coal ashes, or other coarse material, filling it to within two inches of the top. Pound down thoroughly and then fill in with fine gravel a little above the surface of the lawn, taking care to have it well rounded up in the middle. If possible, let the lower layer stay a while before putting on the top one, but the other should be in place and pounded down before the ground freezes. The advantage of making paths in the fall is that they have a chance to work down into a permanent position before the spring.

Wintering Roses

By an Amateur

The only winter protection necessary for hybrid perpetuals or hybrid teas is to hill them up after the ground has been frozen once or twice in the fall. Too heavy an application of manure at this season is apt to hold too much moisture. It is well to stop cultivation about the middle of August in order to give the plants time to ripen up their new wood.

The matter of pruning is something which must be learned by experience, as all roses do not require the same treatment. In the fall after the first frosts, all long canes should be cut back to about three feet. This prevents the plants being whipped about by the wind and loosened. In spring, before growth begins, the regular pruning should be given, always bearing in mind the general rule that weak shoots should be cut back more severely than strong, vigorous ones. The longer the wood is left, the more blooms, but at the expense of quality. All dead wood should, of course, be removed, and it is well to treat all very weak stems the same way.

Climbing roses being grown chiefly to ornament the garden and not for their value as cut flowers should only have the dead canes removed and probably one cane cut back each season in order to have some foliage near the base of the plant. Nurserymen's catalogues contain long lists of varieties in the several classes, and while it is no doubt interesting to test a number of varieties, the finest rose beds are not composed of great mixtures of color. Beds of one color make the finest display. The question as to what are the best varieties is a hard one to answer, as tastes differ, but the following list will prove satisfactory to most people:

Frau Karl Druschki, the finest white rose grown. It only lacks perfume to be perfect.

Clio, flesh colored, somewhat deeper in color at centre.

Mrs. John Laing, soft pink, one of the free flowerers.

Mrs. Crawford, similar to Mrs. J. Laing.

Paul Neyron, deep rose of the largest size.

Captain Hayward, scarlet crimson. large and very sweet-scented.

Hugh Dickson, crimson, very free bloomer.

Ulrich Brunner, cherry red, large size and fine form.

Mrs. P. Wilder, cherry red, free bloomer, and very fragrant.

Killarney, a hybrid tea, very free blomer, having long pointed buds of a beautiful pink and white color.

A bed of ten each of these varieties will be a very handsome addition to any garden.

Peachblow Hibiscus does not flower well in the window in winter. They require rather high temperature for flowering. All of this class of Japanese Hibiscus are best partially rested during the winter in a very cool window or in a cellar, temperature forty to forty-five degrees, and should be re-potted in the spring to flower during the summer.—Wm. Hunt, O.A.C., Guelph, Ont.

Perennials Grown as Annuals from Seed

Wm. Hunt, O.A.C., Guelph, Ont.

THERE are a great many kinds of perennial plants that can be grown from seed, and give good flowering returns the first summer. Many of them are among the most effective summer flowering plants we have. To secure the best results, the seed should be sown early indoors in the greenhouse, hot bed or window. Unless the seed is sown earlier in the season than it can be sown out of doors, the plants do not flower until the season is well advanced; often not until the early frosts mar the beauty of the most tender kinds, so that it is very necessary to sow the seed early in the spring indoors.

Some of the best kinds that will help to make the border gay and bright, and that are easily grown from seed, are petunias, verbenas, antirrhinums (snapdragon), pentstemons, salvia, ageratum, golden feather, centaurea gymnocarpa (Dusty Miller), and lobelia. These are all suitable for planting in masses, rows, or groups in flower borders. Antirrhinums, pentstemons and salvia grow from two to three feet in height. Salvia splendens will grow to a height of three feet or more, while the variety "Zurich" or "Bonfire" grows to only about half that height. Petunias and verbenas are lower growing, about twelve to fifteen inches, while the four last named are dwarfed, growing six to eight inches, and are more suitable as edging plants for the border. All of these plants named are also suited for window or verandah boxes or for hanging baskets, if they are not placed in a too shaded position in summer.

Salvias particularly like an open, sunny position to produce their long, brilliant, scarlet spikes in late summer and early fall. The pentstemons are very attractive border plants, the gloxinioides type having long spikes on which grow numerous large, bell shaped flowers, beautifully marked in a variety of shades and tints varying from almost pure white to a deep purple. The beautiful flowers of the pentstemons and their ease of culture, fully warrant their being grown more extensively than they are at the present time. The improved types of antirrhinums that have been introduced of recent years have also brought these old-fasioned plants into great prominence as bedding plants. These can be had in tall and dwarf growing kinds, one foot to nearly three feet in height. The dwarf kinds make a beautiful massed bed of themselves.

The large flowering "Giant of California" petunias have beautifully marked flowers of immense size, the fringed type of petunias are also very attractive. Some of the smaller flowering compact growing petunias are also becoming very popular as bedding plants. There is probably no plant that will give a larger quantity of flowers and more continuous than the petunia. The large flowering type of verbenas make a very effective border plant. Their bright flowers can often be found late in the autumn, long after the other summer flowering plants have been blackened and killed by frosts. This makes the verbena doubly acceptable as a summer bedding plant.

The dwarf blue ageratums like a rather sunny position, while the rich blue flowers of the lobelia are produced best in a not too sunny position. The Tom Thumb or Crystal Palace type of lobelia is the best for an edging plant, while the taller loose growing kinds are better for the front of windows or verandah boxes.

The Culture of Flowering Bulbs

By H. F. East, Davisville, Ont.

Our popular flowering bulbs are obtained from many lands. They are exceedingly diversified in character, and they bloom at different periods of the year. Each variety has a value of its own, and answers to some special requirement in its proper season under glass or in the open ground. Not least among the merits of Dutch bulbs is the ease with which they can be forced into flower at a period of the year when bright blossoms are particularly precious. Bulbs endure treatment that would be fatal to many other flowers. They can be grown in small pots or be packed together in boxes or seed pans. When near perfection they can be shaken out, and have their roots washed for glasses, ferneries, or for a small aquaria.

Their hardiness, too, is an immense advantage, and permits of their being grown and flowered with the least aid from artificial heat. Small beds and borders may be made brilliant with these flowers, and the number of bulbs that can be planted in a very limited space is somewhat astonishing to the novice. Unlike many other subjects, bulbs may be crowded without injury to individual specimens.

For the decoration of windows, no

Some of the Flowers, Fruit and Vegetables shown at the Ontario Horticultural Exhibition 1912. The Exhibition this year will be held November 16th to 22nd.

other flowers can compare with Dutch bulbs in variety and brilliancy of color. The secret of their accommodating nature lies in the fact that within the hyacinth or tulip every petal of the coming flower is already stored. During the five or six years of its life in Holland, all the capacities of the bulb have been steadily conserved, and we have but to unfold its beauty, aiming at short growth and intensity of color. Of course, there is an immense difference in the quality of imported bulbs; they vary according to the character of the season. The most successful Dutch growers cannot ensure uniformity in any one variety, year after year, because the seasons are beyond human control. But those who regularly visit Holland can always obtain the finest roots of the year, although it may be necessary to select from many sources.

Such bulbs as Lilies, Iris, Moubretia, Hyacinths, and Alstroemeria, suffer in deterioration after the first year's flowering. Indeed, it will be the cultivator's fault if they do not increase in number and carry finer heads of bloom in succeeding years. As outdoor subjects, some of them are not yet appreciated at their full value. Magnificent as Lillium auratum and L. Lancifolium, Album, and Rubrum must ever be in conservatories, they exhibit their imposing proportions to greater advantage and their wealth of perfume is far more acceptable, when grown among handsome shrubs in the border. Very little attention is needed to bring them along year after year, in ever increasing loveliness. I doubt if there are many readers of The Canadian Horticulturist who have seen the workings of the bulb industry of Holland. The writer feels at this point that a few remarks would be of great service after having held a position with a noted Holland grower on a two hundred-acre bulb farm, and with four acres of glass for the early production of flowers.

CLASSIFICATION OF BULBS

Bulbs are classified as parents, and they are graded as first, second, and third size parents, so that each three year is the lengthy period for the bulb, although each year some acres are lifted. Most of the work is done by the plow, which works very easily on the Holland silt. At most places the silt is only four inches deep, the subsoil being hard cement rock. I have seen some hundreds of acres of land without a stone or a hard piece of earth.

The bulbs are planted with the plow; women and girls being largely employed. The women work about twenty-five feet apart, and as the plow turns over the spit, the women plant the bulbs in the furrow. Then each one waits for the plow to come back again so that she can plant her alloted piece again. When the planting is completed the fine harrow and roller are used and the surface becomes as flat as a table. This applies to daffodils, narcissus, and tulips. When the bulbs make their appearance, artificial manure is sown broadcast. It is a grand spectacle to see a large staff of girls with their long digging forks, turning the top right over. The Dutchman has a special fork that enables the prongs to go in only a certain distance.

The first year the bulbs are put down, a crop of turnips is often grown, as the importance of the bulbs is not reckoned on until the second year. Lifting is done by means of the plow. They are thrown into nets, taken to the warehouse to be weighed, and after being dried are hand-picked by women into three sizes.

Space does not permit me to dwell upon so lengthy a subject. I should like to mention that it may surprise the reader as to the time it takes to put up these orders for all parts of the globe. The Dutchmen have a stock size board. The same weight of the same size of bulbs will contain the same number of bulbs. The weights are put to the particular size and the order is executed by weight. For instance, at any bank in England, if one wants twenty pounds in gold, it is weighed and the count is correct.

Another question may arise, what do they do with their flowers? In the early part of the year, when narcissi and daffodils are scarce on second size stock, women go with carts and crop all the buds. It is an amazing sight to see five or six cartloads of buds coming across the fields to be stood in vases of warm water and placed in a temperature of 85 degrees with steam, to burst open for markets on the Continent.

A word as to the greenhouse department on one of these bulb farms. The commercial line is one of the greatest importance. Unless one can see the workings of that enterprise, these few rambling remarks will prove but a poor description. When I say that I have had sixteen women, with men and boy helpers, for six weeks boxing, the extent of the industry may be realized. At times three thousand boxes, three feet by two feet and three inches deep, are laid out and covered with ashes.

When forcing bulbs in Holland, record is kept of the time at which the bulbs go in the houses, also the temperature of each house, three times a day, together with the outside temperature, velocity of the wind, and weather forecast. This procedure is essential during the flowering period, as the strength of the bulb is kept up to a pitch. Tulips are forced in Holland simply by placing the boxes on benches covered with straw.

The industry is a profession by itself —one that needs careful study. On the farm where the writer was, some two hundred hands were employed. Everything was kept scrupulously clean. Cleanliness is their motto. The greenhouse walls, pipes, and four acres of glass were washed by girls and men. To go around at the night time through twelve large houses, each full of bulbs, with thermometers at both ends and the middle and to record all temperatures and weather conditions is by no means an easy task during the bulb season.

Roses from Cuttings

With proper greenhouse conditions, roses can be propagated from cuttings at almost any season of the year, although the summer months are not preferred. To get good results from cuttings of any kind bottom heat is usually necessary. At the same time the air temperature must be comparatively cool. A temperature of sixty-five to seventy degrees for the former and fifty to fifty-five degrees for the latter gives the best results.

Florists propagate most of their rose cuttings during the winter months. During that time the greenhouse temperature is not too high and bottom heat can be applied to the cutting bed by a steam heating system. If the greenhouse temperature becomes too high, the buds start out before the cuttings are properly rooted and failure results.

In the case of roses that are grown out of doors, cuttings four or five inches long and of the new wood are cut in the late fall when the plant has become fully dormant. These may either be buried in sand for several weeks until the ends become caloused, or they may be placed directly in the cutting bed. Sand, three inches deep, and firmly packed, makes the best bed. The cuttings are placed in the sand with only one bud above the surface. Bottom heat is applied and the bed kept well watered. In from two to three weeks roots half an inch to an inch long will be formed and the cuttings are removed to three-inch flower pots. When the plants become too large for the small pots they are transplanted to more suitable quarters.

Cuttings from roses that grow in the greenhouse during the winter are handled in much the same way. Sometimes one leaf is left on and other times the leaves are removed. For the amateur, who grows roses entirely out of doors, the best method is to take the cuttings of the new wood in the early spring while the plant is still dormant. These may then be started in an ordinary hot bed, the bottom heat being obtained by the use of horse manure. Sand is the best surface material. The bed must be kept well watered and on warm days the sash should be slightly raised to prevent the temperature from becoming too high. When the cuttings are properly rooted they can then be potted.

How to Utilize the Small Greenhouse

By Henry Gibson, Staatsburg

THERE are a number of crops that are easily within the reach of the amateur who has at his disposal a glass structure, such as was described in the pages of the August number of The Canadian Horticulturist. Many are apt to feel that something more elaborate than the simple structures described therein is required to produce the handsome flowers and beautiful ferns that one sees in the florists' windows. True, many things are beyond achievement, as in such a place one cannot have long-stemmed American beauties nor the most delicate orchids to present one's friends with at Christmas, but he can very easily have carnations, more beautiful because they will be fresh, if not quite so large as those you get from the florists. You may also have cyclamen, as beautiful and much more serviceable than the best orchid that ever graced a table.

To acomplish such results requires not so much elaborate equipment as unremitting care and attention, not eternal "fussing," but consistent thinking.

There is, perhaps, no more well-beloved flower than the carnation, which entirely deserves the place it has won in the flower-lover's heart. It is equal, if not ahead, of the rose. As a plant it will stand a good deal of abuse, and yet under the care that an amateur can give it will produce an abundance of fine blooms.

To be grown at its best, the carnation should have rather cool treatment, and plenty of ventilation, two factors which place it within the reach of even the smallest greenhouse operator. A night temperature of fifty degrees Fahrenheit should be maintained, with a rise of from fifteen to twenty degrees on bright, sunny days. Avoid cold draughts when ventilating, and on dull days keep the temperature round fifty-eight to sixty degrees.

If you have room for only a few dozen plants, grow them in pots. Probably the local florist has a few left over that he potted up when he had finished planting his benches. Get a few of these, put them into six inch pots, using a good rich soil, say four parts of soil to one of well-decayed barnyard manure. When the pots get full of roots, give them frequent applications of liquid manure. Don't let them starve, but don't overfeed them, and you will be rewarded with a surprising number of blooms from even a single dozen.

If, however, a part of a bench can be allotted them, the results will be more satisfactory, besides entailing a good deal less work by way of attention.

The bench should be well drained and contain about five inches of soil such as that recommended for pot culture.

For early blooming the plants should be put in early in August, the earlier the better; but for one's own use later planting will do. Select a cloudy day for planting, and be very careful not to plant too deep, as stem rot is almost sure to develop as a result of this very common error. Water thoroughly, and keep them shaded for a few days, with frequent syringings every day until they become established, when they should have full sun and an exposure. Watering should only be done, and done thoroughly, when the soil begins to dry out. Practise syringing regularly on bright days, but never on dull ones, and always have the foliage dry overnight.

TRAINING THE CARNATION

As the flower stems grow up, some support will be needed. If you can get one of the many forms of wire supports used by commercial florists, so much the better; but should you not have these on hand, the old method of stake and raffia will do very well.

To get the best and largest flowers, the flower stems must be "disbudded"—that is, all but the end or terminal bud must be pinched off, thus throwing all the strength into the one large flower. If on the other hand the terminal bud is taken off and several of the side buds allowed to develop, the result will be a beautiful cluster of blooms, more pleasing to many than the single large flowers. There are any number of wonderfully good varieties of carnations to choose from, but the white, pink, and light pink Enchantress, with a good standard red, should meet the requirements of the average amateur.

VIOLETS

Requiring less heat than the carnation is the old-time favorite, the violet. The essential thing is to get good plants. As with the carnation, if only a few are required, they can be grown in pots, using the six-inch size. The soil, whether for pots or benches, should be slightly heavier than that used for carnations, about one-fifth well-rotted manure to the soil used. If you can use a bench for them, select one as near the glass as possible, and set the plants about fifteen inches apart if they are field-grown stock and of good size. Water well and keep the house moist and shaded for a few days as you did with the carnations.

GIVE PLENTY OF LIGHT

Violets outdoors grow luxuriantly in deep shade, but to be successful in a greenhouse during the winter months, it is necessary to allow them all the light possible. Keep all the dead leaves picked off, also any useless runners. Syringe on all bright mornings to keep down red spider. The night temperature will be better at forty-five degrees than anything above, with a rise of very little above fifteen degrees during the daytime.

Inside View New Horticultural Pavilion, Allen Gardens, Toronto

Two Common Wilts of Vegetables

B. Blanchard, O. A. C., Guelph, Ont.

TWO diseases which often cause considerable loss to the gardener are the wilt (sometimes called black rot) of cabbages and other members of cruciferae family, such as cauliflower, kale, brussels sprouts, and the wilts attacking the cucurbits, as instanced in cucumbers, pumpkins, melons and squash. Both of these diseases are caused by bacterial organisms and in most respects are somewhat similar.

In cabbages, the characteristic symptom of the disease is a yellowing of a portion of the leaf. The most common point of entrance for the bacteria is through the water pores at the edge of the leaf, especially through the drops of water which may be seen on the edge of the leaf in the early morning. From these pores the bacteria make their way through the veins, the mid ribs and the stalk, feeding on the plant juices. The tiny tubes which carry these plant juices are technically known as the vascular bundles.

ACTION OF THE DISEASE

From the vascular bundles the spread of the disease is comparatively slow. The yellowing of the leaves is not caused so much by the presence of the bacteria in the tissues as by the stoppage of the supply of nourishment. It sometimes happens that the leaves become yellowish because of drought. To determine the exact cause of the wilting, if the stem or mid rib of the leaf is cut across just below the yellow portion, the vascular bundles are found to be blackened, appearing as black spots on the cross section, then the disease may be safely said to be caused by the bacteria. A few trials will make even a novice expert in detecting the cause of the trouble.

The blackening of the leaves, from which comes the name "black rot," is not caused by the bacteria but by a fungus which attacks the plant after it has been weakened by the bacteria.

From plant to plant the disease is most commonly spread by caterpillars and other biting insects; also by the cultivator. The bacteria have been known to live in seed from an infected field for eight or nine months. Infection also takes place by handling diseased plants and then healthy ones. To this end the seed may be soaked for fifteen minutes in a one to one thousand solution of corrosive sublimate, a five per cent. solution of formalin or a five per cent. solution of carbolic acid. After handling diseased plants the hands and implements used should be washed in one of these solutions. Young plants showing any signs of the disease should not be planted. All diseased plants should be gathered and burned. Keep insects under control.

Cucumbers grown in the greenhouse the most susceptible of the cucurbit family to attacks. A whole greenhouse crop will sometimes be destroyed in two or three weeks. The organisms enter the vascular system of the leaves in the same manner as in the cabbage, but the disease spreads much more rapidly through the leaf which becomes dry, dull in color and droops. The presence of the disease can be determined by making a cross section of the leaf stem or stalk and scraping the end of the stalk. If the plant is infected the plant juices will be found to be slimy and stringy, instead of watery.

The most common means of infection is by the cucumber beetle. These insects therefore should be kept in check. Other control measures are similar to those mentioned for cabbage.

How to Judge Potatoes

By Prof. F. M. Straight, B. S. A.

MOST of us farmers think that we know a good potato when we see it, and we do; but not everyone of us can pick out prize winners at one of our exhibitions. In judging potatoes, fancy points are hardly considered. They are examined from the standpoint of utility. Quality and economy are the points kept to the fore. Potatoes excelling in these, win. Some external points, apparently unimportant, are emphasized only because they are indications of the interior quality or economy when prepared for the table.

SIZE AND SHAPE

Under the heading of external appearance we consider the size. Very large potatoes are as undesirable as very small. Both are classified as unmarketable. Very large potatoes must be cut when prepared for cooking. Even then they do not cook evenly and never present a pleasing appearance. Potatoes ranging from eight to ten ounces in weight are right in size.

Markets demand potatoes slightly oblong in shape, but not drawn out as the Black Kidney, once so popular. Again there is a reason for this. The percentage of weight is much less with potatoes of this shape than with others. Potatoes with recessed ends with knobs or protuberances, and irregular in shape, are annoying to the housewife, and far from economical when prepared for the table.

UNIFORMITY THE MAIN FEATURE

Every judge considers uniformity. A plate of potatoes pleases no one if not uniform. The same is true of a barrel. A barrel of potatoes containing ten per cent. "away off" in shape and size will throw discredit on the whole package.

In truth color amounts to nothing. A red potato is as good as a white one, and a black one as either. The demand on the various markets changes with the years. On most markets white potatoes take the lead at present, but not because they are really superior. The best farmers have learned that it never pays to quarrel with a customer. They produce and sell what the market demands. They agree with the voice of the market even when its demands are not backed by reason.

EVIDENCES OF QUALITY

Netting of the skin is one of the minor external points which speaks of quality within. By netting of the skin we mean that russeted appearance, caused by the rupturing of the outer skin in two or more directions. When skin is smooth and more or less transparent, the potato is usually deficient in starch. It is soggy. The amount of netting varies with varieties, but with a given variety the more russeting the better the quality.

From the standpoint of the householder, if potatoes had no eyes so much the better. That being impossible, selection is made from tubers having a comparatively small number. For any purpose, even that of the seedsman, a sufficient number of eyes is always present. The eyes are a nuisance. It is difficult to breed deep eyes out of some varieties; but when best potatoes of any variety are on exhibition, deep eyed specimens are never among the prize winners.

Freedom from blemish and disease scarcely requires discussion. A potato partially peeled is blemished, as it also is if marred with the fork in digging. Scabs and rots disqualify; a scabby potato can never win, or should never win, if it is the only specimen displayed. The internal appearance counts practically for the same as the external. We put the premium on white potatoes, without red or blue streaks. A faint suspicion of blue or yellow when freshly cut is objectionable.

TEXTURE

"Breaking as short as a pipe stem," is an apt phrase when applied to texture in the best potatoes. Sponginess and coarseness are never associated with good quality. If a very thin section is cut across a potato and held to the light, it will be readily seen that the section readily divides itself into three parts: these are the cortical layer next the skin, an external and an internal medullary area. Each one of these layers is unlike the other in texture, owing to the fact that different percentages of starch are found present in each as here shown:

	Starch per cent.	Protein per cent.	Water per cent.
Cortical Layer	19.42	1.99	74.79
External Medullary Area	16.29	2.14	77.44
Internal Medullary Area	11.70	2.31	82.16

These figures represent the average percentages found, but potatoes vary much.

INTERNATIONAL STANDARDS

On starchiness, quality in America chiefly depends. In Europe, what Canadians would call a sticky, soggy potato, is prized; but in America mealiness is sought and obtained. Mealiness is dependent upon the percentage of starch. It follows that mealiness, starchiness and quality are intimately associated.

When a potato is cut the starch dries on the cut surface. From the amount found there, a fair estimate of the starchiness of the specimen may be obtained. For very exact work sections are stained with iodine and placed under the microscope. Each starch grain so stained becomes a deep blue color.

It will be noted by referring to the table that the cortical layer (that is the part next to the skin) is the richest in starch. The other areas are slightly richer in protein, but the digestible protein in these areas is not greater than that found in the cortical. The cortical layer is most prized because of the food (starch) found there. This layer varies in thickness. Other things being equal a potato with a thick cortical layer wins. From this it becomes apparent why smooth potatoes with few eyes are most prized. In peeling rough specimens the most of the cortical layer is cut away with the consequent loss of the most nutritive portion.

All vegetable tissue is composed of cells. These cells are boxes with wooden walls. The box contains a large amount of water and other substances. One of the principal of these, in the potato, is starch. When starch comes in contact with heat it expands wonderfully. If these starch grains are numerous enough the expansion is so great that the cell wall is ruptured, producing that mealiness so much desired. In some cases the starch is so much greater on the outside that it becomes mealy and "cooks away," while the interior remains hard. This happens only when the cortical layer is very thin and not ideally blended with the deeper seated layers.

Advertising Vegetables

W. H. Munday, London, Ont.

Why don't we advertise our vegetables? The product is fresh from the workshop of nature. It is pure, undiluted, unexcelled, and capable of keeping the system in tone. Doctors tell us that asparagus is good for the kidneys, tomatoes are stimulating for the liver, onions for the stomach, spinach for the blood, and so one. Well, why not advertise our vegetables when they have such recommendations?

CHANGE THE DIET FASHION

There are thousands of people in Canada who fare on meat, and pie and cake, who never realize what health-giving properties are contained in fresh vegetables. Properly cooked they digest easily, and are assimilated rapidly. Plenty of vegetables means pure blood, good appetite, freedom from disease and long life. These thousands of people must be told. If necessary these facts should be constantly held up before their eyes through advertising. Our business as growers of vegetables makes this a matter of duty. Let us not only advertise our product, but let us grow a better article and more of it. By all means let the people know about it. There is a secret in growing good vegetables; there is also a secret in selling them. Notice how the Californians advertise their raisins, oranges, and celery.

Don't you think that if our apples were advertised they would sell better? Good advertising starts a fashion. If there is a fashion in dress, there is also one in diet. Start a fashion in eating vegetables and fruit, and it will mean larger sales if not higher prices.

We are told to put up our products in neat, clean and attractive packages. That is all right, but it is not sufficient. We must impress the public with the fact that we have the goods.

Ginseng Beds of Dr. MacKendrick, Galt, Ont.

Dr. MacKendrick commenced growing ginseng a few years ago. "By raising your own seed and planting them," says Dr. MacKendrick, "each three-year-old plant will give about fifty, a four-year-old seventy-five and a five-year-old about one hundred seeds."

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

UNITED STATES RERESENTATIVES
STOCKWELL'S SPECIAL AGENCY
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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticultnrist. It is devoted exclusively to the horticultural interests of Canada. The second edition is know as The Canadian Horticulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,783	November, 1912...	11,162
May, 1912.....	12,112	December, 1912....	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each Issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912, 11,037

October, 1913..... 14,100

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO.

EDITORIAL

PROTECTION OF SHADE TREES

"The Province of Ontario sets a good example in legislation for the protection of shade and street trees to the rest of the Dominion. Under the Tree Planting Act of the province trees planted or left standing on the public highways (and also on toll roads) become the property of the owner of the land adjacent to the highway and nearest to such trees. Thus any company or individual destroying or damaging in any way (even tying a horse to) such trees without the owner's consent, is liable to a fine not to exceed twenty-five dollars and costs, or imprisonment for not more than thirty days half of the fine to go to the informant. Telephone companies, who, in the stringing of wires, very often seriously injure and mutilate shade trees, are apt to justify themselves to the property owners by asserting their legal right to do such 'pruning' because of established precedent. In this case no such practice however long it has been tolerated by property holders, becomes legally justifiable. However long a wire may have been attached to a tree, the owner if he has property in the tree, can compel its removal.

"While even the owner may not remove shade trees on highways without the consent of the municipal council, yet on the other hand, not even the municipal council may remove any live trees without the consent of the owner of the property in front of which the tree stands, unless such tree is within thirty feet of other trees, and even then the owner must be given at least two days' notice and can demand compensation if he has planted and protected such tree or trees.

"The property owner who is aware of his rights in these respects will take greater interest in and greater care of the trees bordering the highway opposite his property. He will also have more incentive to plant shade trees."

The foregoing is an extract from a bulletin issued by the Dominion Forestry Division. It proves that we are making progress in our journey towards the beautification of our roadsides. It is evident, however, that such a by-law is only a preventive measure, a measure which owing to the lack of trees on many of our highways, will never effect a complete remedy.

We hope the day is not far distant when steps will be taken by municipal bodies to encourage the planting of trees, to improve the aspect of our highways and byways, thereby broadening our aesthetic taste.

APPLES FOR QUEBEC

Though many of the best varieties of apples grown in Ontario will also grow in Quebec, experience, as evidenced by old plantings, teaches us that Quebec is not suited to the rearing of Northern Spies, Blenheims and such like.

The French-Canadian province is learning another lesson, a lesson which does not alone apply to her, that the planting of too many varieties is not profitable from a commercial standpoint.

It is now generally admitted that the McIntosh Red, Fameuse, Wealthy, and Milwaukee are among the most suitable for the province. No large exporting or shipping business can be successfully accomplished until the community agrees to go in for a few of the best varieties. The formation of cooperative societies, in the pomological districts, which would give special attention to this phase of the business, would go a long way towards concentrating the choice of varieties on these commercial types already mentioned.

THE UNITED STATES TARIFF

The new United States tariff, as it relates to fruit and vegetables, is bound to have an important influence on the fruit and vegetable growing interests of Canada, particularly in Ontario and the east. The southern counties of Ontario are particularly well adapted for the growing of many tender varieties of fruit, as well as early vegetables. These products, hitherto, have been shut off from the United States markets by the high tariff wall that has prevailed. It will take some years before our growers will ascertain what the new United States market will mean to them. Ultimately a great increase may be expected in our trade with the chief cities of the northern and eastern States. In seasons of searcity across the border hundreds of thousands of barrels of eastern apples will cross the border with advantage to our growers.

It is altogether likely before long that Canadian consumers will agitate for a reduction in the Canadian tariff. It will be time enough to deal with this situation when it arises. In the meantime our growers should profit materially by existing conditions.

BROWN ROT OF PEACHES

During the ripening season many peach growers may have found that their fruit instead of ripening became brown. On closer examination, these brown fruits will be found to be decayed underneath the skin. This is a very serious disease of peaches, and these fruits, though they do not all fall from the tree in winter, should be removed and carefully destroyed.

The reason for this is that the fruit is responsible for carrying the disease over to next year's crop, and if left to remain in the tree may even affect the twigs and branches to the detriment of their vitality. Infected fruits which are found on the ground should not be allowed to remain there, as the wind is capable of carrying the spores of the disease to the next year's crop. This infection can only be prevented by the absolute destruction of all diseased fruit in the fall.

It is only natural to expect that with the decided shortage in the world's fruit crop, prices will be higher. The Ontario crop will not be over half of a full yield. In Nova Scotia early varieties are exceptionally light, while late kinds will only be a fair crop. The average for the whole Dominion is estimated at only forty-eight per cent. of a full crop. The United States crop is estimated at fifty per cent. of last year's. Nova Scotia growers are expecting extra good prices for the few Gravensteins that will this year be shipped. They also expect the later varieties to be in good demand. English orchards recently sold have commanded unprecedented prices. If proper marketing methods are followed there is no reason why Canadian apple producers should not receive remunerative prices.

The fact that the Ontario Horticultural Exhibition this year will be held in conjunction with the National Dairy, Live Stock and Poultry Show, should lead to a great increase in the attendance. It is probable that the Ontario Horticultural Exhibition under the new arrangement, will lose a good deal of its identity. This is to be regretted. The object of the exhibition, however, is to accomplish the greatest good for the greatest number. If the new arrangement enables this to be done no valid objection can be taken to it. It deserves to receive a fair and sympathetic trial.

PUBLISHER'S DESK

The front cover illustration on this issue of The Canadian Horticulturist shows a St. Thomas school, which won first prize in the competition conducted by the St. Thomas Horticultural Society, among the schools of the City for the most attractive floral arrangement. Does it not set an excellent example for hundreds of other town and city schools?

The December issue of The Canadian Horticulturist will be to some extent a Special Christmas Number. An unusually attractive cover design has been prepared for that issue. It will be printed in colors. In addition the fruit, flower and vegetable departments will contain extracts from the most interesting papers read at the conventions which will be held in Toronto this month in connection with the Ontario Horticultural Exhibition by The Ontario Fruit Growers' Association, Ontario Horticultural Association, and the Ontario Vegetable Growers 'Association. As these papers will be prepared by a number of Canada's leading authorities on the subjects which will be dealt with, our December issue will be an unusually instructive and helpful one. In addition, full reports of the exhibits of fruit, flowers and vegetables will be published. Watch for our December number.

Ontario Horticultural Exhibition

The Ontario Horticultural Association is holding its annual exhibition this year in conjunction with the National Live Stock, Horticultural and Dairy Show, which opens at Exhibition Park on November 17. Under the influence of this new and larger organization it is expected that the fruit, flower and vegetable departments will receive an added impulse and support in maintaining their fall shows.

The importance of this year's event is emphasized by the scope taken by the new organization. The name "National" is intended to have far-reaching significance. The need of a national show has been a growing necessity the last few years, and the cooperation of the various branches of the great agricultural industry will make for its immediate and permanent success.

Entries in the fruit, flower and vegetable sections will not close until November 10, and from communications so far received an unusually large number of exhibitors will be represented.

The show occurs at the same time as the annual convention of the Women's Institutes of the province, and this event in itself will make for added interest.

In the poultry department a competition has been established for dressed fowl, and a demonstration of egg handling with appropriate lectures will also be a feature.

SOCIETY NOTES

We invite the officers of Horticultural Societies to send in short, pithy reports of work that would interest members of other Horticultural Societies.

School Competitions

Many horticultural societies in Ontario have obtained excellent results through the holding of school competitions. One of the most successful societies in the province is located in Galt. The Galt Society has held this contest. Eight prizes are offered to each school separately, the prizes being as follows: $2.00, $1.75, $1.50, $1.25, $1.00, 75c, 50c, 25c.

The rules of the Galt Society are as follow:

Section 1 (a)—That all competitors be required to plant and cultivate a plot of ground equal to one hundred square feet, preferably ten by ten.

Section 1 (b)—That the Galt Horticultural Society provide them with two kinds of flower seeds and two kinds of vegetable seeds, to be grown by them in rows.

Section 1 (c)—That each competitor is required to exhibit two or more of his or her products at the Society's show, to be held on August 28th and 29th next, when each will have another chance of a prize in section three.

Section 1 (d)—That competition be confined to scholars in 3rd and 4th books.

Section 2—Any scholar not competing in Section 1 may obtain from the Society either two packages of flower seeds or two packages of vegetable seeds, to be sown and tended to by themselves, and some of their products must be exhibited at the Horticultural Show in competitions for prizes.

Section 3—A first and second prize, 75c and 50c, will be given to each school for the two best vases of Asters exhibited. Prizes donated by the President.

Section 4—A first and second prize, 75c and 50c, will be given to each school for the best two vases of Nasturtiums exhibited.

St. Thomas

The season of 1913 has proved the most successful in the history of the St. Thomas Horticultural Society. On September 6, the two big windows of the Baldwin Robinson's Co.'s store on Talbot Street were filled with a beautiful display of flowers. Some magnificent asters were shown by Joseph Howard, and Mrs. D. Caughell, North Yarmouth, had some beautiful dahlias. In addition, there were a number of vegetable entries, and the cup, medals, and prizes donated by city merchants were also exhibited.

In the Lawn and Garden competition, there were one hundred and fifty entries. The quantity and quality was far ahead of last year's standing. W. R. Rewbotham, J. H. Still, F. E. Bennett, W. H. Jagoe, and Dr. Guest were the heavy prize winners in the home lawn classes. For floral beautification of the home, first honors went to W. R. Rewbotham and J. H. Still. Col. E. H. Caughell won the silver medal for the best perennial garden. W. R. Rewbotham was first on best rose garden. Balaclava Street School again won the first prize for the best kept school lawn. The best vegetable gardens were those of Jas. Graham and Alfred Walker. Pere Marquette railway shops had the best kept factory lawns, and the Merchants' Bank the finest looking business place.

The St. Thomas Horticultural Society has issued its list of options for 1913-14. In a brief introduction the officers point out that during the past season the society more than doubled its membership, planted fifty-two public flower beds, held four flower shows, and paid over three hundred dollars in prizes for competitions. They assert that a membership of two thousand is not an unreasonable wish for 1914. In all some sixteen excellent options are offered.

Perth

The school children were a live factor at an exhibition held recently by the Perth Society. Over forty children made entries in sweet peas and asters. The St. Catharines Horticultural Society sent an exhibition of prize gladioli which had been grown by W. B. Burgoyne, Mr. and Mrs. J. A. Abbs, Mr. and Mrs. W. H. Nicholson, and Mr. C. A. Hesson. There were also some choice prize grapes and peaches from W. H. Bunting, W. J. Furminger and C. and A. Blungell, of that city.

Music was furnished, including selections by a male choir and home made candies and cut flowers were offered for sale. The society is now planning for the holding of an even better exhibition next year.

If we could get everybody in the Dominion educated to our standard box, I do not see any reason for adopting the Oregon box.—Jas. Gibb, British Columbia.

Encouraging Exhibit of Sweet Peas by School Children, is a Line of Work Conducted by an Increasing Number of Horticultural Societies

The New United States Tariff and the Canadian Fruit Industry

WHAT effect will the new United States tariff on fruit have on the Canadian fruit industry? This is a difficult question to answer. The production of fruit both in Canada and the United States varies so greatly year by year and also by districts there is certain to be an almost equally great variation in the effect of the new tariff. On the whole, it cannot help but be beneficial. In years of heavy production in Canada it will mean hundreds of thousands of dollars a year to our fruit growers.

The fruit growers of British Columbia will benefit the least. The great fruit producing states of the Pacific Coast more than supply their local demands with the result that there is not likely to be much of an opening for British Columbia fruit in the adjoining states. At times fruit from British Columbia will cross the border, especially into the north-western states, and be sold in some of the large cities of the middle west.

THE EAST WILL BENEFIT

Ontario will benefit to a marked extent. Had the change in the tariff taken place six weeks earlier it would have meant many thousands of dollars to the peach growers of Ontario. Each year large quantities of Ontario fruit will find a market in the states. The Niagara District will benefit especially as will also the counties bordering along Lake Erie, and the St. Clair River.

Nova Scotia should find a market for considerable of its fruit in the New England and Atlantic Coast States, particularly in seasons of scarcity on the other side. The short haul will effect a great saving in the marketing of this fruit.

THIS YEAR'S SALES

The change in the tariff came into effect too late this year to be of much benefit to Canadian growers. Practically all of the Ontario apples, and the same is largely true of Nova Scotia's crop, had been sold by the first of October to go either to the west or to Europe. The crop of apples being short both in the United States and in Canada, sales were made early at good figures.

GROWER'S OPINIONS

Desiring to ascertain how leading growers and commission men looked on the situation, The Canadian Horticulturist wrote to a number of them. Among the replies received were the following:

Robert Thompson, Manager, St. Catharines Cold Storage and Forwarding Co.:—"In seasons of scarcity of fruit and vegetables in the states, there will be a greater demand for produce from Canada, should we happen to have a good crop. We will also create a demand for fruit and vegetables that are grown here in greater abundance and to better perfection owing to our late seasons. We will for the present not have to contend with any shipments from across the line owing to the high Canadian tariff. But I can see trouble ahead for the Canadian fruit growers and producers. There will be a demand from the Canadian public for the duties to be lowered or taken off the same lines coming into Canada. The Canadian fruit and vegetable growers will never be satisfied to allow the Canadian Government to take the duty off fruit and vegetables coming into Canada and at the same time continue the high duties on our supplies, such as spray material, pumps, baskets, leno for covering baskets, and everything that they use in connection with the business. The unfairness of any proposal to take the duties off fruit and vegetables coming into Canada while retaining the high protection on supplies, would mean that our growers would have to pay from twenty-five to thirty-five per cent more than growers in the states.

"I will give you a few instances: The St. Catharines Cold Storage Co. bought this season two hundred thousand Lino covers from the manufacturer on the other side, and paid thirty-five per cent. duty, or exactly one-third of a cent each, or six hundred and sixty-six dollars duty more than the grower on the other side of the line is charged. Several hundred thousand baskets had to be purchased, on which a duty of thirty per cent. is levied. On basket fasteners they charge thirty per cent.; on spray pumps from twenty-seven and a half to thirty-five per cent. So you can readily see how we are handicapped.

"When our growers are assured that these duties will be lowered then we will be willing to consider the lowering of the duties on fruits and vegetables. Every one, growers and consumers alike, would be benefited by such a general reduction, but not by such a one-sided reduction as I can see the Canadian consumer is getting ready to demand.

"This season is one permitting the Canadian grower to ship his produce to the other side with profit, but possibly next season we might not be favored with such excellent crops, and the American produce might then come in here in competition. As one of the growers I am in favor of a reduction on all duties but not any one-sided affair in which the grower will get the worst of the bargain."

SHOULD BE A BENEFIT

J. W. Smith & Son, Winona, Ont.: "The new tariff regulations of the United States should have a good effect on account of the large markets opened to the grower. It should raise the prices to a certain extent, but if they had made it free entirely it would have been much better. The business that will be done now will be mostly through wholesale houses, and the consumer on the other side will not get the benefit as he should. Had they taken the duty off entirely our producers then would have gone after the retail trade. As it is the tariff will so interfere with business we will have to direct our shipments through wholesale houses and they will look after the tariff. The new arrangement should benefit the majority of fruits, particularly the tender fruits, such as peaches, berries and grapes, especially at the points where there are large cities just across the border."

WILL HELP FRUIT GROWERS

H. W. Dawson, Brampton, Ont.: "The new United States tariff will be a benefit to the fruit industry in Canada but it would be much better for the producers if Canada could adjust her tariff so as to take advantage of all the benefits. As I am not so closely in touch with the shipments here as formerly I cannot give you particulars. One of the largest growers of peaches who was a strong opponent of reciprocity in 1911, told me recently that the bigest mistake he ever made was to vote against reciprocity; that if he had had access to the markets of the United States this one season he would have been hundreds of dollars ahead. That, he said, applied to all peach growers in the district. The freer exchange of perishables we can have with the States the greater will be Canada's benefit."

W. J. Kerr, Ottawa: "The new United States tariff arrangements on the vegetables of Canada, I do not think will make any great difference to us except in the vicinity of large American cities. At Prescott there may be some trade worked up with Ogdensburg, and at Windsor with Detroit. Canada is not likely to become a vegetable exporting country in the near future. We are buying hundreds of thousands of dollars worth of vegetables from the United States annually. Every large city in Canada buys large quantities from the United States. The Soo, Port Arthur and Fort William import very large quantities. The great truck gardens of the Atlantic coast states, as well as parts of western New York and Ohio, as well as several other parts of the Union, grow enormous quantities of vegetables and will likely continue as in the past, to use Canada as a dumping ground for great quantities of their surplus, so unless Canada removes her tariff walls conditions will likely remain much as they are. Were Canada to remove her restrictions we would in a very few years see the growers on this side practically put out of business by the growers in the more southern country, where two and often three crops a year can be grown in the open ground."

The Barrel Package--Some Defects to Remedy

D. E. Lothian, B.S.A., Peterboro Co., Ont.

We cannot change the taste of the market in a day. Those experienced in any commercial enterprise, no matter what the nature of it may be, will testify to the correctness of that statement. Though it may ultimately come to pass that we shall change from the barrel to the box package in the shipping of apples, we need not expect that this will occur in a day either. It therefore behoves us to improve as far as is possible meantime the commonly accepted package and to attempt in every way to make perfect the condition of that package.

One common imperfection, a fault which can be easily remedied, is due to the fact that orchardists commonly leave their barrels exposed to weather conditions with the result that the inner side of the staves becomes warped and uneven. This may not necessarily be obvious to one examining only the outside of the barrel. Again many barrels when they are manufactured are set up with staves of uneven thickness with the result that considerable shoulder may be found to project on the inside. It was found last season by some of the fruit inspectors that some of these barrels had a shoulder of three-sixteenths of an inch projecting almost the whole way from the head to the tail of the barrel, with the result that when the barrels were packed and the press applied the whole row of apples extending along this shoulder was pressed against it and sufficiently bruised to make them unfit for human consumption. The erection of a rain shelter and the inspection of the new barrel will correct these defects.

BETTER QUALITY LABOR

At a time when we hear so much about distributing labor, on the farm, the orchardist may not be made any exception to this requirement. In order to spread his labor over the season, it is advisable to erect a home cooperage building. The whole outfit need not cost more than fifty to seventy-five dollars. Such an outfit will help to provide the laborer with work all the year round.

ARE YOU GOING
To Build
GREENHOUSES
We Design and Manufacture
Iron Frame, Pipe Frame and All Wood
We Use Only The Best
All Heart Red Gulf Cypress Woodwork
We Also Supply
Ventilating Machinery, Bench Material and all kinds of Greenhouse Hardware
Write to
PARKES CONSTRUCTION CO.
167½ KING ST. E. - HAMILTON, ONT.

Beeswax Wanted
BEST MARKET PRICE
CASH OR EXCHANGE
THE HAM & NOTT CO., LIMITED
BRANTFORD, ONT.

Fruit Machinery Co.
INGERSOLL, ONT.
Manufacturers of Sprayers and a complete line of
Apple Evaporating Machinery
Installing Power Evaporators a specialty
OUR LEADERS
Ontario Power Sprayer
Model 2-B, and the
Improved Pacific Apple Parer
Write for catalogue on Spraying and Evaporating

Record Your Shipments

G. E. McIntosh, Transportation Agent, O.F.G. Association, Forest, Ont.

THE shipping season is now on, and and I take this opportunity of again urging fruit growers to keep specific data of all their shipments. A number did this last season, and these records were of great assistance to our Transportation Committee.

The ordering of cars should be done in writing, keeping a duplicate copy, a record of date ordered; on the back of this a record of date supplied, giving car number and initials, destination of each car, when and where shipped, date of arrival, etc.

For all car lots, the shipper should notify the agent when he will start loading and the agent must then give the shipper a clear bill of lading without notation "Shipper's Count." Insist on getting such, otherwise loss by pilfering, etc., returns to shipper L.C.L. The railway company must load.

There is no additional charge for heaters supplied for carload traffic. The proper heating equipment for each car is four heaters.

MAN IN CHARGE

The privilege is granted of sending a man in charge of heated refrigerator cars, free, and the railway company will allow him a return at the rate of one and one-half cents a mile.

In transit the local agent should supply gratis a report of car shipments passing divisional points.

Refrigerator cars or box cars when refrigerators cannot be supplied should have slatted floors, but when shippers have to

Douglas Gardens
OAKVILLE, ONT.

Belated Orders for
Pæonies
Irises
Delphiniums
Heleniums
Phloxes
Aquilegias
Etc., Etc., Etc.
Will be filled promptly and planting may still be done successfully.
Fall Planting List sent Free on request
JOHN CAVERS

Apple Shippers
Read this before disposing of your Apples
IT'S ONLY NATURAL to give your own property THE PREFERENCE — Blood is thicker than water.
Having no bought apples of our own, we are in a position to look after your interests Consign your apples to us—we can take care of them for you.
Have ample storage to hold for improved market.
Dawson-Elliott Co.
32 West Market St., TORONTO
PHONE MAIN 1471

Greenhouse Glass
We manufacture a special line for greenhouses. It is of good quality, flat, squarely cut and even thickness, virtues which cannot be dispensed with for lapping or butting.
Shall be pleased to quote prices on application to any of our Canadian depots:
MONTREAL Busby Lane
TORONTO Mercer St.
WINNIPEG Market St.
VANCOUVER Powell St.
Pilkington Bros., Limited
Works at St. Helens, Eng.

furnish such, the railway company must allow him three dollars for each car.

LAKE AND RAIL SHIPMENTS

Regarding the handling of apples from Eastern Canada to points in Ontario, Manitoba, Saskatchewan, and Alberta, the railway companies claim they cannot furnish refrigerator cars to take care of all cargoes delivered at their Lake Superior terminals. They will not assume responsibility for damage by frost after October fifteenth. Refrigerator cars, supplied with heaters, will be furnished as far as possible. When box cars are used, the shipper will be permitted to line and place stoves or other means of heating in them and the railway companies will furnish free transportation both ways for attendants accompanying such for looking after the heating. This privilege, however, does not apply on all rail shipments, but we are endeavoring to have it apply on such when refrigerators cannot be supplied. If granted, growers will be advised.

CHANGING DESTINATION

Agents when requested, will undertake to change in transit the destination of carload traffic from one place to another, charging three dollars for each change, plus the difference which may exist between the rate billed and the rate from shipping point to ultimate destination. If out of the direct run an additional charge per ton per mile (minimum twenty miles) will be made for such extra haul.

Our Transportation Committee has neither the power nor the desire to make it binding upon fruit shippers to keep records and to send them to me, but the effort to improve conditions is in your interest, therefore I confidently expect your cooperation.

San Jose Scale in Nova Scotia

The Nova Scotia Department of Agriculture is leaving no stone unturned in the effort to stamp out San Jose scale, which has made its appearance in the province. This pest was first discovered in the Annapolis Valley in the spring of 1912 by G. E. Saunders, who was then in charge of the Brown Tail Moth inspection work. The scale was found on trees that had been planted at Aylesford the previous year.

Steps were immediately taken to ascertain the extent of the infection. It was found that the pest had been introduced in many localities. Inspectors were immediately sent out with authority to destroy all infested trees. During the year one hundred and fifty thousand trees were inspected on over seventeen hundred properties, and seven hundred and twenty-three trees were destroyed.

This season the inspection work was continued and it is hoped that all infested stock was located. Legislation has been enacted making it imperative that all infested stock be either destroyed or shipped out of the country. All nursery stock coming into the province must bear a certificate of inspection, stating that the nursery in which the crop was grown had been inspected the previous year and found free of all injurious pests and diseases. All such stock must be shipped by Digby or Truro where it is inspected and fumigated.

Concentrated lime sulphur, applied before the buds open in the spring, is the best known remedy. Concentrated kerosine emulsion is also effective on dormant trees and a diluted solution can be applied to the trees when the lice hatch during the summer. The females do not lay eggs the young being produced alive. It is estimated that each female will produce four hundred living young in a single season

The Call of the North

DO you know of the many advantages that New Ontario, with its **millions of fertile acres,** offers to the prospective settler? Do you know that these rich agricultural lands, obtainable free, and at a nominal cost, are already producing grain and vegetables second to none in the world?

For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

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Sprayers
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For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

Send for Catalogues and particulars to: **VERMOREL** Manufacturer, VILLEFRANCHE (Rhone), FRANCE

UNSURPASSED COLD STORAGE
—FOR—
APPLES IN BARRELS OR BOXES

Fruit unloaded direct from cars shipped via any railroad. Handled exactly the same as our own supply. Rates Reasonable.

FRUIT DEPARTMENT
THE **WILLIAM DAVIES CO.** LTD.
Toronto R. INNES, B.S.A., Manager Ontario

SPECIAL No. 26 Sent to your Express Office carefully packed, for **$5.00**

8 Beautiful House Plants
AND
100 Choice Winter Flowering Bulbs
All for $5.00

We stake our reputation on this Special Bargain. The most careful buyer cannot select better quality or get more for the money. The plants are all thrifty and healthy; of full blooming size, and such only as will do well in the ordinary home atmosphere. The bulbs are those that are sure to bloom and thrive and give delight to the inmates of the home all throngh the long Canadian winter. Send us $5.00 and we will express to you as follows:

PLANTS

1 Choice Ostrich Plume Fern.
1 Fine Boston Fern.
1 Splendid Chinese Primrose.
1 Beautiful Cyclamen.
1 Rare Begonia.
1 Fine Cinerarla.
1 Strong Asparagus Fern.
1 Large Kentia Palm.

Our regular selling price of these plants will average 50c each, and some of them we retail at One Dollar each.

BULBS

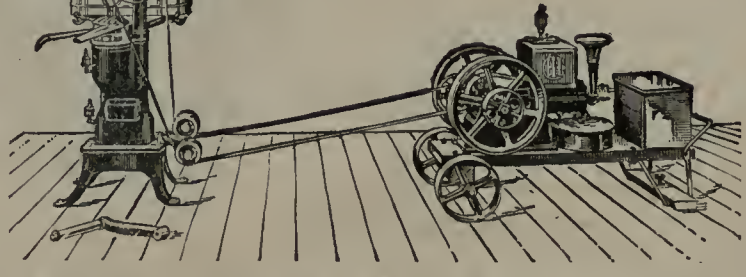
12 Early Narcissus Paper White.
12 Early Roman Hyacinths.
12 Freesia Mammoth size.
(The above are for early Xmas bloom).
12 Dutch Hyacinths (all colors).
12 Choice Single Tulips (all colors).
12 Superb Double Tulips (all colors).
12 Double Daffodils, a choice assortment.
12 Single Daffodils, a choice assortment.
2 Chinese Sacred Lillies.
2 Bermuda Easter Lillies.

Cultural directions for these Plants and Bulbs are found in our Catalog, which we mail free.

The above bulbs will give continuous bloom until Easter. Catalogue prices of these bulbs is $4.00.

This Order is Not Good after December 15th.

The Hay, Floral & Seed Co.
Seedmen and Florists
ROCKVILLE - ONT.



Next Door to Perfection

POUR your milk into an I H C cream separator. Out of the cream spout will come close to 9,999 parts of cream for only one part that goes into the skim-milk pail. That's marvelously close separation; it means every possible dollar of dairy profit from your cows.

It takes an I H C separator to do such efficient work. Every detail has its use, every mechanical point its purpose. Shafts and spindles are the strongest made for separators. Bearings all have phosphor bronze bushings. Gears work without back lash, and they are protected from dirt and grit. In short, everything in

I H C Cream Separators
Dairymaid, Bluebell, or Lily

makes for great strength and durability. Perfect adjustment and balance mean smoothness and ease in operating, hence continued satisfaction during long life. All parts are easily accessible for cleaning. There are four convenient sizes of each style.

Then if you have a one-horse power back-geared I H C engine to complete your separator outfit, you will soon find that an indispensable helper on the farm. It will run steadily and at the proper speed to pump water, run washing machine, churn, grindstone, etc.

Study I H C separator outfits at the local agent's. Catalogues may be obtained from him, or, write to

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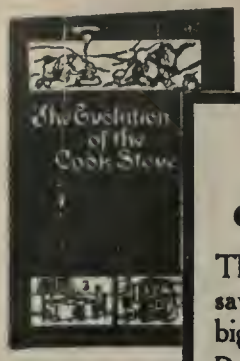
EASTERN BRANCH HOUSES
At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.



Let us send you our book "The evolution of the Cookstove"—an interesting history of cooking. It also gives a clear, simple description of the Dominion Pride Range—complete in every detail. Reading this book is like examining the range itself.

Send for a copy.

COUPON

Canada Malleable & Steel Range Manufacturing Co., LIMITED OSHAWA.

Send a free copy of your book "The Evolution of the Cookstove"

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Save 30% on your New Range

That's about $20.00 isn't it? And you can save it by ordering direct from the factory (the biggest malleable range plant in Canada.)

Dominion Pride Range is the range you would choose at any price—a beautiful steel range with unbreakable doors, castings and lids of malleable iron—a range that saves coal—a range so solidly built that with care it will last a lifetime.

And you can secure a Dominion Pride Range by making a small payment with your order—the balance on terms to suit your convenience.

Dominion Pride Range

Thousands upon thousands of Canadians have sent to us direct for their ranges, and we have yet to hear a complaint. Our unconditional guarantee goes with every range.

52

We pay Freight

DAVIES' FERTILIZERS ARE MONEY SEEDS!

"AS YOU SOW THEM, SO SHALL YOU REAP"

WRITE FOR OUR LITERATURE
PATRONIZE OUR AGENTS

THE WM. DAVIES CO. LTD.

WEST TORONTO ONTARIO

CAN BE SOWN WITH GRAIN DRILL

(AN UNSOLICITED TESTIMONIAL FROM ONE OF OUR MANY SATISFIED CUSTOMERS)

SPRUCELEA FARM, Sept. 22nd, 1913.

THE WM. DAVIES CO., LTD., WEST TORONTO, ONT.

GENTLEMEN:

My Fertilizer came to hand all right and I thank you for your promptness in making shipment.

I had no trouble in sowing it as a top dressing over my wheat I have a Massey Harris No. 5 disk drill. I took the disks off and sowed it with the drill in that shape. The dangling of the coil steel tubes, caused by the unevenuess of the ground, scattered the Fertilizer over every inch of the ground.

A Massey Harris Agent told me it was impossible to sow Fertilizer with a grain drill—but if your Fertilizers always come as dry as this I bought, then the grain drill will do quite nicely for me. Now for results.

Kindly quote on the following Poultry Foods, etc., etc. Yours very truly,

(Signed) W. H. WATERBURY.

It isn't a question as to whether you should use Fertilizer or not—the question is, can you afford not to use Davies. Take the word of thousands of Ontario Farmers for it—you can't.

Programme Arranged

An unusually helpful and instructive programme is being prepared for the convention of the Ontario Horticultural Association, which will be held in Toronto on Thursday and Friday, November 20th and 21st, at the same time as the Ontario Horticultural Exhibition and the first National Live Stock and Dairy Show. At a meeting of the directors of the association held in Toronto this fall, it was decided to hold the convention on the Exhibition Grounds, provided suitable arrangements could be made and that the other conventions that would be meeting about the same time meet there also. It is understood that dining privileges are to be arranged for on the Exhibition Grounds.

The programme this year will devote more attention than usual to the work of the individual societies in order that the delegates who attend may be enabled to obtain helpful ideas regarding the work that may be undertaken by the societies. Speakers are to be secured from societies that have made a distinct success holding lawn and garden competitions, regular exhibitions, and of other similar work.

Among the leading speakers it is expected will be Mr. John Nolan, of Cambridge, Mass., who is an authority on civic improvement, and whose address will be illustrated. Mr. H. J. Moore, of Queen Victoria Park, is to be asked to give an address on the "Ornamentation of Town Boulevards and Country Roads."

In addition, Park Commissioner C. E. Chambers, of Toronto, will be asked to give an address on "Parks and Boulevards for Small Towns." An effort is to be made also to have an address by an authority on school gardens. Copies of the programme, as finally completed, will be mailed to the horticultural societies at as early a date as possible.

Results from Pre-cooling

Several car loads of fruit this fall were shipped from the pre-cooling plant which was established last summer at Summerland, B. C. The first car which went to Edmonton arrived in fine condition, selling at $1 a box. A thermograph placed in the car showed considerable fluctuation of temperature en route, going as high as 70 degrees. Another car did not arrive in such good condition, but the thermograph record was better. The temperature of the fruit was from 48 to 65 degrees. After loading the car, the temperature dropped rapidly, going down as low as 50 degrees.

Tests of the plant have shown records as low as 28 degrees. The fruit itself registered 45, which is about as low as is advisable to bring the temperature. A different plan is to be adopted—that of cooling the fruit before it is wrapped and packed. Ripening will thus be checked that much earlier.

Recent bulletins and circulars received by The Canadian Horticulturist include: Special Bulletin 61, Spray and Practice Outline for Fruit Growers, 1913; Special Bulletin, 60, Celery Culture in Michigan; Special Bulletin 59, Small Fruit Culture; Circular No. 20, Starting a Lawn; all four issued by the Michigan Agricultural College Experiment Station. Bulletin No. 134, A Dry Rot of the Irish Potato Tuber, and Press Bulletin No. 40, Potash Pointers, are issued by the University of Nebraska Agricultural Experiment Station. Facts about Flies and Mosquitoes, and How to Prevent Them, are two pamphlets issued by the Provincial Board of Health for Ontario.

POTASH MEANS PROFIT

EXPERIMENT ON THIMBLEBERRIES
Conducted by Messrs. Cruise Bros., Keatings, B. C.

The following materials were applied to the fertilized plot:—
200 lbs. Muriate of Potash
400 ,, Acid Phosphate
140 ,, Nitrate of Soda, per acre

BECAUSE—

Potash Improves Quality
Potash Increases Quantity
Potash Promotes Maturity

THESE THREE IMPORTANT FACTS have been proved to the satisfaction of a large number of Market Gardeners and Orchardists throughout the Dominion.

Government statistics show a large increase in the consumption of POTASH during the past fiscal year. The above FACTS are the REASONS for this INCREASE. CAN *YOU* AFFORD TO OVERLOOK THEM?

Write us for FREE copies of our educative and illustrated Bulletins on the important subject of fertilization, which include:—

"Fertilizing Orchard and Garden"
"Artificial Fertilizers, Their Nature and Use"
"Principal Potash Crops in Canada"
"Farmer's Companion"
"Fall Application of Fertilizers"

THE GERMAN POTASH SYNDICATE, 1102-5-6 Temple Bldg. **Toronto, Ont.**

PUBLIC DISCLAIMER

KELWAY & SON, Wholesale Seed Growers, Langport, England, hereby give notice that they have no Agents in Canada for the sale of their Seeds and Plants, and it having come to their notice that A. W. Smith, of Beachville, Ontario, also trading as

Riverview Nursery Co., of Woodstock, Ont.
Smith's Nurseries, " Ingersoll
Imperial Seed Co., " Woodstock

are advertising themselves as "Agents," find it necessary to insert this disclaimer.

We state most emphatically that any person or persons making use of our name in the sense of an Agent does so without our permission and we are taking steps to protect our rights.

KELWAY & SON cater for the requirements of bona fide members of the Seed and Nursery trade, and any enquiries and orders sent direct to them at Langport, England, will receive prompt and careful attention.

KELWAY & SON

Wholesale Seed Growers and Merchants
LANGPORT, ENGLAND
Estd. 1851

WARNING

It has been brought to our notice that a so-called Nursery and Seed concern is representing itself as a branch of the "Helderleigh Nurseries." To protect our interests, and to preserve a good reputation of over thirty years, we feel it necessary to advise the general public that we have no connection whatever with any firm trading under the name of ***Smith***, and operating from different points in Western Ontario.

Parties knowing of such representations being made will confer a favour by advising us immediately.

E. D. SMITH & SON, Limited

NURSERYMEN, ETC.
WINONA (Wentworth Co.) - ONTARIO

Seven Solid Reasons

SEVEN solid reasons why each farm needs a manure spreader are these, in the words of a farmer who has devoted much time to correct soil feeding. 1. It saves disagreeable and hard work. 2. It pulverizes and mixes the manure mass. 3. It distributes manure evenly over the field, insuring a good even stand of grain. 4. It prevents loss of nitrogen through fermentation or leaching in the pile when manure is hauled directly from the stable. 5. With it manure can be put on plowed ground in winter to be disked as soon as the ground is fit in spring. 6. It will put manure on meadows as a moisture-preserving mulch and to furnish the grass roots with the liberated plant food. 7. Indirectly, the ease with which it can be handled encourages the owner to care for the manure and place it where it will do most good instead of dumping it anywhere for lack of time or inclination.

I H C Manure Spreaders

Deering and McCormick

will do all these things for their owners. They will do them well and satisfactorily. Choose the right machine for your work and conditions from the complete I H C line. You will find them all styles and sizes, high and low, endless apron or reverse.

I H C manure spreaders are exceedingly durable, strong, correctly built to stand all conditions and all strains they may meet. Each feature has its purpose. Uphill or down, or cutting corners, they spread all kinds of manure evenly, in a light or heavy coat at the choice of the driver. The beater drive is strong and simple, beater teeth are square and chisel pointed to pulverize the manure, and the large diameter of the beater prevents winding. The wide-rimmed rear wheels, carrying a large percentage of the load, insure ample tractive power.

But see all these things yourself at your local agent's. He will explain each one, and many more we have not space to mention here. The agent has catalogues for you, or, write the

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EASTERN BRANCH HOUSES

At Hamilton, Ont ; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.

FLOWER POTS

Hanging Baskets, Ferns Pans, Etc.

We have a large stock of all sizes on hand, and can ship orders without delay.

Order Now Before the Rush

Our pots are smooth and well burnt. We have our reputation to keep up.

Send for Catalogue & Price List

The Foster Pottery Company, Ltd.

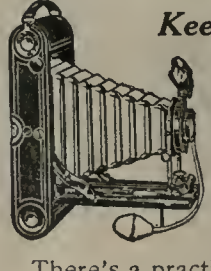
Main St., West - Hamilton

Have a Garden Straight from England

KELWAY & SON

The Royal Horticulturists

Langport, Somerset, England



Keep an accurate

Kodak Record

There's a practical common sense use for photography in the work of every business farmer—and photography by the Kodak system is both simple and inexpensive.

Catalog free at your dealers or by mail

Canadian Kodak Co., Limited

TORONTO

Quebec Pomological Society

R. A. Rousseau, B.S.A., Acter-Vale, Que.

The summer meeting of the Quebec Pomological Society took place at Rougemont, the centre of the well-known fruit growing county of Rouville, on September 8th and 9th. The meeting was presided over by Rev. Father Leopold of the Monastery of La Trappe, Que., who delivered a practical address on "The Way to success in the Production of Fruit."

Mr. J. A. Jacobs, the president of the Cooperative Society of Rouville County Fruit Growers, welcomed the members. He was followed by R. A. Rousseau, B.S.A., who spoke on "Pruning the Orchard."

Mr. J. C. Chapais, the well known lecturer, described a new emulsion for insects and diseases. Every nurseryman, every fruit grower, knows how difficult it is to apply the petrol emulsion to check the aphis or plant lice on nursery stock and fruit trees. If we have also to kill caterpillars, we are obliged to make two applications—one for the plant lice and one for the caterpillar. Hence it would be very economical if we could control both of them, with only one application. Mr. Chapais described a new emulsion which has been tested in France with excellent results, and proposed that a small quantity be imported next spring and experimented with in the demonstration orchrads. The suggestion was carried unanimously.

Mr. Chas. P. Byers, of St. Paul d'Abbotsford, spoke on "Cultivation in the Orchard," and Henri Cloutier, B.S.A., superintendent of the demonstration orchards for Rougemont and St. Hilaire, dealt with "The Harvesting and Conservation of Fruits."

Ben Richardson, B. S. A., superintendent for Abbotsford and Covey Hill demonstration orchards, spoke on "Insecticides and Fungicides—the Best Practical Methods to Prepare and Use Them." This is a timely subject for our fruit growers who, practically, have only recently realized the great benefits of a liberal spraying. The demonstration orchards have done a great deal to induce fruit growers of Rouville and elsewhere, in the province to spray and spray again.

F. M. Clement, B.S.A., told about his trip through New York state and Western Ontario.

Mr. Clement was confident that we are progressing and that our district is not surpassed regarding all conditions best suited for the production of fruits. He was pleased to note that the Cooperative Society of Rouville is erecting at Rougemont, near the railroad track, a large warehouse, which will be used to grade, to pack, and to keep for the fruit growers and consumers' best interests our two famous Quebec apples—the Fameuse and the McIntosh Red.

Rev. Father Leopold, speaking English as well as French, closed the convention by saying good words to all those who are devoted to fruit growing and who had worked so hard to make our summer meeting a real success.

The carriage of fruit by post is being introduced in New Zealand by the New Zealand Government. Arrangements have been made with the railways, and carrying companies whereby the fruit can be shipped direct from producer to consumer.

Tell advertisers that you saw their advertisement in The Canadian Horticulturist.

FRUIT, FLOWERS AND VEGETABLES

The Annual Fall Exhibition of the Ontario Horticultural Association will this year be held in conjunction with the

National Live Stock, Horticultural and Dairy Show

EXHIBITION PARK, TORONTO

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¶ The most complete and elaborate collection of flowers that can be brought together in the Dominion, is gathered by the Ontario Horticultural Association for this occasion. New varieties, rare specimens and artistic emblems will represent the latest development of the horticulturalists' art.

¶ In the fruit section the apple show will reach a new high standard. The importance of the National Live Stock, Horticultural and Dairy Show, will give this section a wider significance throughout the country.

¶ Vegetables and honey will have larger space and improved facilities.

¶ The Women's Institutes of Ontario are meeting in convention at the same time as the show, and their exhibit of preserved fruits will be on a large scale.

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Harry C. Wotton, Manchester, England

From early in October until the end of the American or Canadian season the apple trade occupies by far the most important place in the fruit business of the enormously populated districts surrounding Manchester and Liverpool. Of course we have other fruits as well, but apples are easily first in importance and value, more so now than at any other period of the year. Since the trade with the Antipodes has developed they are seen on our market all the year round, and it may be well to remark in passing that this latter fact has done much to still further popularize the use of our principal winter fruit.

Apples arriving at Liverpool or in Manchester by the Ship Canal may be separated into two classes, namely those sent to the brokers, and those sent to private firms. By far the greater bulk go to the former, so we may well take their method of procedure first.

In Liverpool there are six, and in Manchester three firms of brokers. In each city they are formed into a very powerful association. Although each of the members of these associations has its own individual interests and its own staff and offices, there is a common auction room, where each firm takes it in turn to sell its fruit by auction, commencing with the firm whose turn it is to sell first, and the others following in rotation. Naturally the auctioneers themselves are very highly trained, and can judge the value of the goods to a nicety. They one and all sell at a terrific rate especially on a big day, and it is almost impossible for one unaccustomed to the saleroom to follow the business at all, even with the aid of the printed catalogue.

Program of the Fruit Convention

A cursory glance at what is only a partial list of the speakers before the coming convention of the Ontario Fruit Growers' Association, will assure us that the success of this coming meet will be quite in keeping with the standard set by former conventions. For those interested we herewith publish the names of the speakers with their subjects:

President's address—W. H. Dempsey, Trenton, Ont.

Peach Insects, and the present condition of Little Peach and Yellows—L. Caesar, O.A.C.

Transportation Report—G. E. McIntosh, Forest, Ont.

Help in Fruit Picking Time—Mrs. L. A. Hamilton, Lorne Park, Ont.

Importance of Demonstration Work—R. S. Duncan, Port Hope, Ont.

Color on your Fruit and how to Get it—W. F. Kydd, Fruit Branch.

The Factors which enter into the Choice of Varieties for a Commercial Plantation of Apples—Prof. J. W. Crow, O.A.C.

Precooling (paper)—S. J. Dennis and H. J. Ramsay, U. S. Dept. of Agriculture.

Fruit Packages—R. M. Winslow, Victoria, B.C.

Advertising the Apple—U. G. Border, Chairman Advertising Committee International Apple Shippers Association.

Currant and Gooseberry Culture—L. B. Henry, Winona, Ont.

The Northwest Market—Robert Thompson, St. Catharines.

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A MAN tried to sell me a horse once. He said it was a fine horse and had nothing the matter with it. I wanted a fine horse, but, I didn't know anything about horses much. And I didn't know the man very well either.

So I told him I wanted to try the horse for a month. He said "All right," but pay me first, and I'll give you back your money if the horse isn't all right."

Well, I didn't like that. I was afraid the horse was'nt "all right" and that I might have to whistle for my money if I once parted with it. So I didn't buy the horse, although I wanted it badly. Now, this set me thinking.

You see I make Washing Machines—the "1900 Gravity" Washer.

And I said to myself, lots of people may think about my Washing Machine as I thought about the horse, and about the man who owned it.

But I'd never know, because they wouldn't write and tell me. You see I sell my Washing Machines by mail. I have sold over half a million that way. So, thought I, it is only fair enough to let people try my Washing Machines for a month, before they pay for them, just as I wanted to try the horse.

Now, I know what our "1900 Gravity" Washer will do. I know it will wash the clothes, without wearing or tearing them, in less than half the time they can be washed by hand or by any other machine.

I know it will wash a tub full of very dirty clothes in Six Minutes. I know no other machine ever invented can do that, without wearing the clothes. Our "1900 Gravity" Washer does the work so easy that a child can run it almost as well as a strong woman, and it don't wear the clothes, fray the edges, nor break buttons, the way all other machines do.

It just drives soapy water clear through the fibres of the clothes like a force pump might.

So, said I to myself, I will do with my "1900 Gravity" Washer what I wanted the man to do with the horse. Only I won't wait for people to ask me. I'll offer first, and I'll make good the offer every time.

Let me send you a "1900 Gravity" Washer on a month's free trial. I'll pay the freight out of my own pocket, and if you don't want the machine after you've used it a month, I'll take it back and pay the freight too. Surely that is fair enough, isn't it.

Doesn't it prove that the "1900 Gravity" Washer must be all that I say it is?

And you can pay me out of what it saves for you. It will save its whole cost in a few months in wear and tear on the clothes alone. And then it will save 50 to 75 cents a week over that in washwoman's wages. If you keep the machine after the month's trial, I'll let you pay for it out of what it saves you. If it saves you 60 cents a week, send me 50 cents a week 'till paid for. I'll take that cheerfully, and I'll wait for my money until the machine itself earns the balance.

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B. H. MORRIS, Manager, "1900" Washer Co., 357 Yonge St., Toronto.

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Every sale, however small, is a support to the industry.

COLLAR.—Pure Linen. $1.00.

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DAINTY HANDKIE.—70c. No. 910.—Lace 1½ in. deep.

No. 122.—80c. per yard.

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Mrs. Armstrong having over 100 Irish peasant girls connected with her industry, some beautiful examples of Irish hand made laces may be obtained. All work being sold direct from the lace-makers, both the workers and customers derive great advantage.

MRS. HORACE ARMSTRONG, OLNEY, BUCKS, ENGLAND

Nova Scotia

Nova Scotia apples have just commenced to reach London. Messrs. Nothard & Lowe's state that an unusual proportion of the shipments consist of number three fruit, and whereas the quality of the Blenheims and the small quantity of number one Gravensteins which have come to hand is quite good, the condition of the number three Gravensteins is distinctly bad. Several barrels opened contained a lot of apples suffering from black spot.

Present quotations for apples of almost all kinds are high, and Messrs. Nothard & Lowe and other firms consider that good quality sound Canadian fruit is likely to continue to command high prices during the coming season, although English and other apples have derived considerable benefit from the unusually fine weather which has prevailed for the past few weeks and the crop has consequently come out a little better than was expected.

The great fruit counties of Hants, Kings and Annapolis, Nova Scotia, held their annual exhibition on October 7-9, at the town of Windsor. The exhibition was an unqualified success. The display of fruit and vegetables was remarkable, not only for the choice quality of the exhibits but also for the number of entries.

Nova Scotia growers by organizing have secured a rate on aples from Nova Scotia to Winnipeg, which is one cent per barrel lower than on apples shipped from Ontario to Winnipeg.

British Columbia

An agitation is being conducted in many quarters to procure a reduction in the rates of the Dominion Express Company for carrying fruit. The fruit industry of the province is largely dependent upon the service given by the company.

In an open letter which was published recently, Mr. S. J. Fee, Manager of the Vernon Fruit Company, asserts that the peach industry of the province might be saved and the company increase its dividends were it to give a better service. Mr. Fee points out that it takes several days to pick, pack and assemble a carload of peaches; that peaches must be assembled with other fruits to make a "mixed car," and that when loaded it must pass through the hands of a broker, a wholesaler and a retailer, whose charges must be paid. The balance, if any is left, is all the producer realizes. He claims that the amount received by the grower is so small peach growing in British Columbia is proving unprofitable.

The freight rate on car loads is practically twenty cents a crate with an additional ten cents local freight from distribution points to smaller towns. Mr. Fee advocates the making by the Dominion Express Co. of a flat rate on peaches of thirty cents a crate to all points in Alberta, which would be equal to the present freight rate, and save much of the handling by middlemen. Similar reductions are advocated for berries, cherries, apricots and plums.

At a banquet recently held in Okanagan, Hon. Price Ellison stated that what the fruit growers require more than anything else is a better system of marketing. A comparison of the prices received by the grower and those paid on the Vancouver market, shows that there is much room for improvement. The opportunities confronting the British Columbia fruit grower may be understood when it is considered that 15 car loads of American fruit went into Vancouver in one day. Demand still exceeds supplies.

The Canadian Horticulturist

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Currant and Gooseberry Culture*

L. B. Henry, B.S.A., Winona, Ont

THE production of currants and gooseberries in Ontario is increasing in importance year by year, and now there is a large acreage in cultivation. It was not many years ago when growers were pulling out whole patches of red and black currants because the demand for the fruit was so poor as to cause prices to be unprofitable. Black currants sold as low as sixty cents for a twenty-pound basket, while red currants could not be sold at any price.

Conditions have changed considerably during the past thirteen years. Prices have gradually advanced until now we can obtain as high as ten and one-half cents a pound wholesale for black currants and around six and one-half cents for the red varieties.

On the other hand the price of labor has increased. Twenty cents used to be paid for picking a twenty-pound basket of black currants, while now thirty-five and forty cents is the prevailing price for an eleven-quart basket.

The increase in the prices of these fruits is due to the large number of jam factories which have been erected throughout the province. Black currants cannot be sold readily on a fruit market at such high prices to individual householders, but these same people will buy the jammed article and in the end pay more for it, as they pay also for the cost of manufacturing.

The western provinces are demanding more every year and quite a quantity of the fresh fruits are shipped out there. The care of the black and red varieties is very similar, the only essential difference being in methods of pruning.

SOIL AND LOCATION

Patches planted in the northern parts of Ontario would be better on a north slope. The sun's rays would not be so strong in the early spring, and consequently there would not be the same damage from forcing the buds early and having them injured by a late spring frost.

Black currants will grow on almost any soil, but for the best growth should be planted on a rich, clayey loam which is well drained and retentive. The soil must be well drained to allow early cultivation in the spring and must be retentive to conserve sufficient moisture to swell out the fruit. Usually about the period when the berries are growing most rapidly, there is a dry spell, and we must have a soil which will tide the crops over this trying period.

Red currants require a soil of a lighter nature for best success. A rich, sandy loam, which is also well drained and retentive, has been found to be the best.

PROPAGATION

Both classes are almost entirely propagated from cuttings which are made from the present year's growth. These are made about eight inches long and trimmed off at the base of a bud, at which point the callousing process is the most rapid.

Cuttings may be made early in the fall as soon as the wood is ripe and planted immediately in nursery rows. If the fall is favorable they will root and be ready for growth the following spring. They should be covered with straw or strawy manure to prevent heaving by frost and also to hold back growth a little in the spring. If this is not done the leaves will come out rapidly and use up all the stored food in the cutting before the roots have become active. Cuttings may also be made in the winter and stored in old sawdust or a mixture of sawdust and sand. Making them in the spring and planting them out directly is sometimes tried with indifferent success. From my experience cuttings made in the winter and stored in sawdust until planting out time have made much better growth than those made by any other method.

SELECTION OF PLANTS

Select plants which have a large fibrous root system and a thrifty looking top. A good two-year-old is superior to a one-year-old, because they have a larger root system. However, one-year-old culls are usually planted again and sold as two-year-old number one, and I prefer the one-year-olds for that rea-

A Novel Exhibit Made by Peel County at the Recent Ontario Horticultural Exhibition

Note how in this exhibitt of apples, made in the form of a map of the county of Peel, the townships, power lines, railroads and other features of the county are shown.

*Extract from a paper read at the recent annual convention in Toronto of the Ontario Fruit Growers' Association.

son. It requires a few years for a cull to regain its normal growth, and one can depend on thrifty one-year-olds to keep right on growing, providing they have proper care.

PLANTING

Planting may be done in the fall or spring. If conditions are favorable, the fall is the best, for the reason that currants leaf out and start into growth very early, and if the ground is wet and planting time is postponed, they receive a set back. I have seen them planted out when in full leaf, but they did not do well. By planting in the fall, they become established before winter sets in, and are ready for business in the spring. They should not be pruned until spring.

There are many methods of marking a field out for planting. If one wishes to be very particular, every hole should be marked with a stake, but this method is not usually employed commercially where the money end of the game is the one aimed at.

The following method is easy, cheap, and satisfactory. Having decided the distance the rows are to be apart, place white stakes about five feet long at each end of the field the required distance apart. Then by sighting from each end of the field from these stakes, other long stakes can be placed at intervals down the rows. These stakes are used merely as a guide for the plowman. Plow a furrow out each way and then take another furrow out of the bottom so as to deepen it. A wire on which the distances are marked with solder or tar can then be stretched along the furrow and a hole cleaned out at each mark for the plant. This method reduces shovelling to a minimum.

The plants should be placed fairly deep, as we want them to grow in bush form and to sucker freely. They should be deep enough so that the first few branches are covered with earth at the junction with the main stem.

Patches vary a great deal as to distances of planting. Some people recommend four feet by six feet, others six feet by eight feet. I know of a patch twenty-two years old planted three and one-half feet by seven feet, but the former distance is a little too close for satisfactory cultivation crosswise, and every other bush has since been taken out. Another patch of two acres planted five years ago at three and one-half feet by nine feet is already too close in the rows to allow cross cultivation. The reason for planting the rows at nine feet apart was to allow a power sprayer to be used, as currants should be sprayed for the best success. Also, two-horse implements may be used to advantage. From experience gained from our own mistakes, we have formed a new ideal of planting distances, and it is this. The bushes should be five feet apart in the row. This gives plenty of room for the bush and also for cross cultivation. The rows should be seven feet and nine feet apart. Starting on one side of the field, plant three rows seven feet apart and then there should be a space of nine feet and

A Heavy Yielding Current

The red currants on the branch here shown were grown by Mr. Wm. Dick, Echo Place, Ont. He considers it a better variety, known as Tam O'Shanter, than the Cherry currant. It is an Old Country variety and very prolific.

then another three rows seven feet apart. This method economizes a little space and yet provides a space for the power sprayer. Even if a grower does not intend to use a large sprayer, it is best to have the spaces wide enough to be able to drive a manure waggon through, as driving over the top of the bushes is certain to cause injury to the buds.

CULTIVATION

Thorough cultivation is absolutely necessary for best success. In the fall plow up to the bushes and thoroughly furrow out the patch so that no surface water will remain on the ground.

The patch should then be in good condition to stand the winter. Cultivation should begin in the spring as early as the ground is workable. A good implement to use is the two-horse springtooth cultivator, which works the soil up into fine particles. Cross cultivation can be done with a one-horse springtooth cultivator. The earth and weeds which remain in the middle of the bush can be taken out with a berry fork. After this the patch should be cultivated at least once a week to preserve a dust mulch until after the crop is off, when cultivation should cease. This gives the young succulent wood a chance to ripen before winter sets in, and also generally allows a beautiful crop of chickweed to develop. If manure is applied it should be put on in the fall and plowed down so as to be partially rotted and available as plant food when growth begins in the spring.

FERTILIZATION

The soil should be kept rich, and for this purpose twenty tons of manure may be applied every three years. This does not seem to be a very heavy application, but judging from what I have seen, it is enough.

Nobody knows much about the benefit of commercial fertilizers on their crops as yet. The manure may be supplemented by a two-eight-ten mixture, but I would not recommend commercial fertilizers alone, as in time the proper mechanical nature of the soil would become injured.

PRUNING

Black currants bear the fruit on wood of the preceding year's growth. As the canes become older the size of the fruit deteriorates, as it is necessary to practise a system of renewal in pruning. Red currants bear their best fruit on two-year-old wood, and canes should not be allowed to remain longer than five years.

Pruning may be done at any time after the leaves fall, but it is usually carried on in late winter. No set rule can be laid down, as many different conditions are met with and a good deal of judgment and commonsense has to be exercised. Canes which have passed the age of greatest productiveness should be removed and young ones allowed to take their place. Broken branches and those too close to the ground should also be removed. Young, vigorous branches should be headed back to encourage the production of fruit spurs all along their length. This is particularly the case with the Fay variety, which has a tendency to produce its fruit spurs near the end of the branches, and when the bushes are loaded heavily, they are liable to be borne to the ground, allowing the fruit to become spoiled.

Young plants must not have much pruning for three years except to cut back about two-thirds of the growth each year to encourage the development of fruit spurs. Pinching back the shoots in the summer is not practiced much, but the patch should be watched for canes that may have the cane-borer. All such should be cut out and burned. The best tool for pruning is a good heavy pair of grape prunes.

The very worst advertisement for Ontario apple growers in the west is the appearance of a poor grade of Ontario barrelled fruit exposed for sale side by side with the beautiful appearance of the boxed goods from Oregon or British Columbia.—C. J. Thornton, M.P.

Prevalence of Peach Yellows and Little Peach Decreasing

L. Caesar, Provincial Entomologist, Guelph, Ont.

I AM very pleased to be able to report that there is a continuous rapid decrease in the number of trees that have to be destroyed each year for Yellows and Little Peach. In 1911 between fifty and sixty thousand trees were destroyed; in 1912, between twenty and twenty-five thousand, and in 1912, between five and six thousand, a decrease in two years of from fifty to sixty thousand to about six thousand. This will be good news to peach growers and it gives us all hope for a still further reduction. We ask the growers not to grow too confident, but recognizing that the work is progressing well, to give us their hearty, intelligent support year after year that we may, if possible, exterminate these diseases. We should not forget that it is very probable that the last two seasons have not been at all favorable for the development and spread of these diseases. If so, we are glad that we have been able to take advantage of nature's aid and so reduce the danger of rapid spread in future seasons more favorable for the disease.

Mr. Biggar, the provincial inspector, and myself, are well pleased with the work in every township but two, Grantham and Niagara. The disease is only moderately common in these townships, but the territory is too great for any one man to cover satisfactorily no matter how experienced he may be; the inspector, however, in each of these cases was an inexperienced man. There should be two of the very best men that can be secured appointed in each of these townships, at least for Yellows and Little Peach. We hope this advice will be acted upon next year. Mr. Biggar and I, so far as it is possible, will try to give these townships the larger part of our time, so that the work may progress. We have been fortunate in retaining most of our best inspectors, and we are glad to be able to report that they have done loyal and excellent work for their townships, better work than most growers realize.

To Mr. Biggar, the provincial inspector, whose energy and enthusiasm in the work is unfailing, and whose tact and knowledge are of the greatest value, both to inspectors and growers, very great gratitude should be felt by every man who is interested in the welfare of the peach industry. Owing to the pressure of the new work of nursery inspection, and to numerous other duties, I entrusted to Mr. Biggar this year almost the total charge of the Yellows and Little Peach inspection work, knowing that he would do it well.

Observation of the results of so-called cures of the disease have led me to change my opinion that all such cures are only imaginary—they have all failed. The only remedy yet seems to be eradication; dig out the diseased trees at once, and burn them.

Experiments last year, repeated this year, show that if peach pits are taken from trees that do not show the disease until later on in the season, and if these pits are cared for in the best way and cracked in spring before putting out in rows, often as high as seven or eight per cent. will germinate. I have tested now over three thousand diseased pits. Some of these from lack of experience I allowed to become too dry before planting and consequently a very small percentage grew. This was true also of healthy pits kept as checks but of the others that were cared for properly from one lot of one hundred in 1912 there grew seven, and from another lot of seven hundred and fifty in 1913, fifty-nine grew, or nearly eight per cent. Mr. McCubbin, the Dominion Plant Pathologist of St. Catharines, obtained very similar results.

So far the seedlings from these pits have shown no sign of disease. Mr. McCubbin and I have now about one hundred and sixty of these seedlings in one lot and will watch them to see whether they will show disease, and if so how soon.

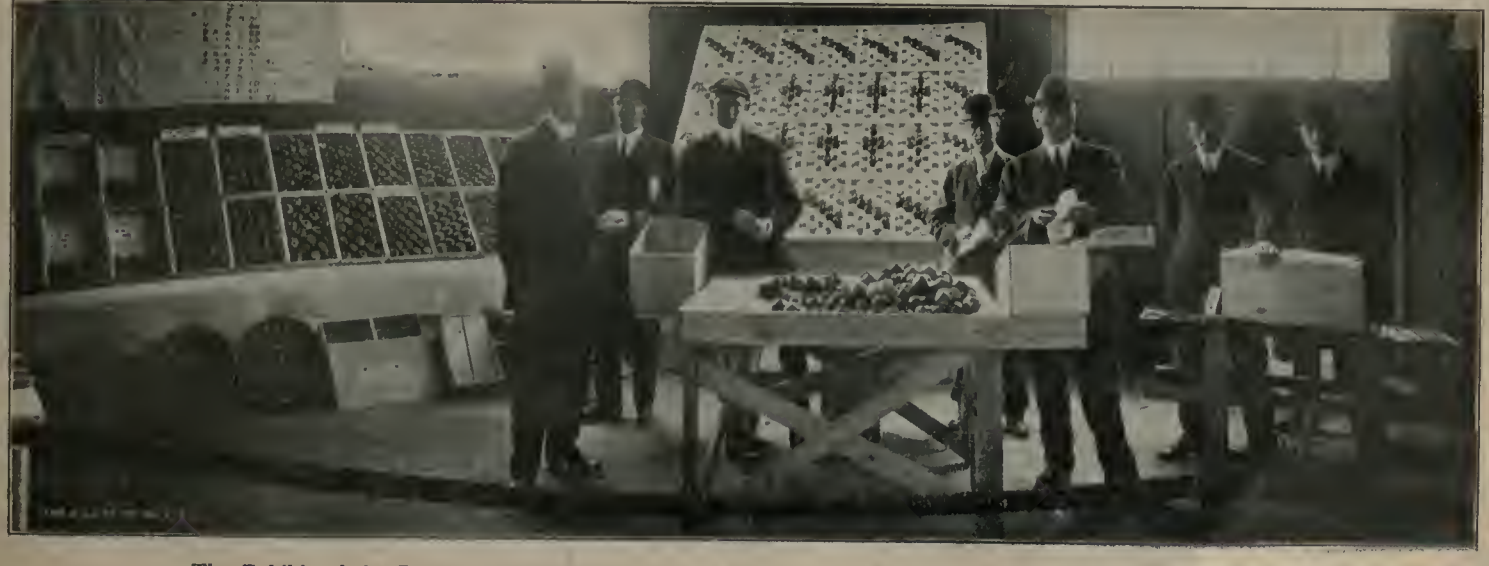
More than two hundred buds from diseased trees were budded into healthy seedlings and four year old trees a year ago. Only one tree, one now five years old, shows posible symptoms of disease. The rest are still healthy. I have budded two hundred more seedlings this fall, believing a considerable number of the trees budded in 1912 will begin to show disease symptoms by next September. I am not at all surprised that they have not done so earlier as the trees are all growing vigorously.

From inoculation of blossoms, from inoculation of trees with sap, from pruning tests, bark rubbing tests and the other experiments up to the present no disease has followed, but this is no proof that none will follow.

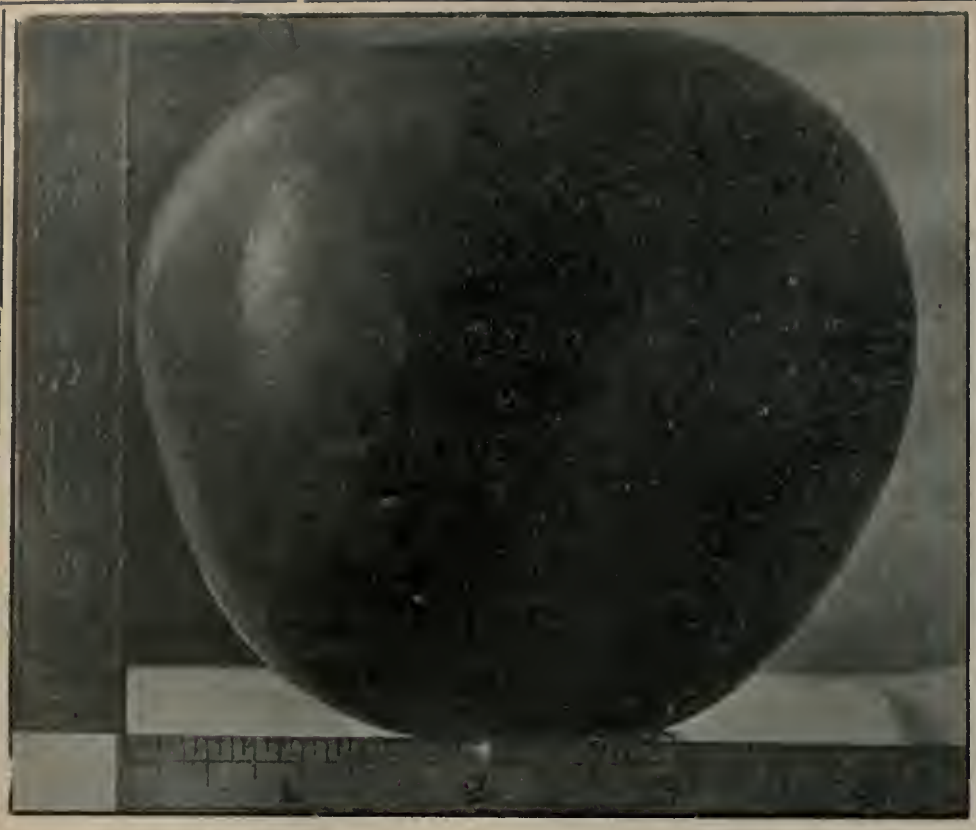
Before repeating these experiments I think it is much wiser to wait a couple of years for results. The work has been carefully done and covers pretty well the field which I thought most desirable from the standpoint of important information on the control of the disease.

No new discoveries, I believe, have been made elsewhere on these diseases, and apparently no one is much nearer the discovery of the real cause of either Yellows or Little Peach.

*A paper read at the annual convention of the Ontario Fruit Growers' Association held recently in Toronto.



The Exhibit of the Dominion Department of Agriculture at the Recent Ontario Horticultural Exhibition
Demonstrations in apple packing were given daily at 10 a.m. and 2 p.m.



A Fallwater Apple Grown by W. H. Gibson, Newcastle, Ont.

The Plum Industry of Ontario*

F. M. Clement, Macdonald College, Quebec

JUST a few words more to sum up my remarks and draw some conclusions and I am through. In those districts usually considered too cold for plum production some native varieties are likely to prove hardy. De Soto Stoddard, Wolf and Hawkeye, and Cheney, do well with us. Cheney buds have survived forty-three degrees below zero. These varieties will not likely ever prove serious competitors with domestic varieties in the open market, but they are worthy of a place in the home garden and for local planting and it is the duty of our experiment stations to select or breed varieties that will thrive in the colder parts.

The tendency is to drop the once greatly lauded Japanese varieties for heavier plantings of Reine Claude, Green Gage, Niagara, Monarch, Grand Dukes, German prunes, Italian prunes, and, for the western markets, Damsons.

Plums, at present prices, seem adapted to large scale production rather than intensive plantings. The cheapest land on the farm, provided the soil is suitable, is the place for them. They thrive as well on clay as on the richest sands.

If plums are worth planting at all, they are worthy of good care and attention. They respond as quickly to care as does any other fruit.

The time is ripe for planting plums of certain varieties. The demand will have increased very materially for good fruit by the time they come into bearing.

I would recommend the following varieties for commercial plantings in the leading plum districts: Burbanks in limited numbers, provided the grower is prepared to thin so as to keep up the size; Bradshaw—one of the best canning and market blue plums. It is always in demand because of its quality, earliness and medium to large size. Reine Claude and the other plums of similar type for general market, dessert and canning purposes. The trees are often delicate and a little difficult to grow but bring a good price and generally yield well.

Monarch—This is a large sized blue plum of medium quality. It is in good demand because of its late season and large size, and is a good bearer.

Grand Duke—A large blue and egg-shaped plum that is in good demand because of its late ripening, large size and fair quality. The egg shaped plums are always popular.

German prunes are in heavy demand, are of the highest quality, and free from stones. They are adapted for dessert, cooking or making prunes, and are one of the best sellers. Many were sold at forty to forty-five cents a gallon retail in Montreal this year.

Italian prunes have been very heavily planted. They are larger than German prunes and are expected to some day replace them. Damsons, Common Damson and Shropshire Damson, bring the highest prices. It will pay to plant them for the western markets. They are used largely for preserving. Other good varieties are: Shiro, Quackenboss, Gueii.

*This article comprises the concluding paragraphs of a paper read before the recent annual convention of the Ontario Fruit Growers' Association.

The Flavor of British Columbia Apples

W. J. Sheppard, Nelson, B.C.

On page nine of the November number of The Canadian Horticulturist, I notice the following paragraph: "A comparison of the quality of the fruit of British Columbia with that of the product grown in Ontario, has often been made. The answers which we have received by those on the spot in regard to this particular point assure us that while British Columbia apples are generally of better size and almost invariably of better color they cannot compare favorably with Ontario fruit when flavor is considered."

I should like to enquire if samples of the same varieties of apples grown in British Columbia and also in Ontario have been compared side by side, and these conclusions as to flavor arrived at?

The great trouble in Britsh Columbia is that by far too many varieties are grown, and that the highly-colored, flavorless kinds, that please the eye only, were, as a rule, given the preference when the orchards were first planted. Of course in a new country, the original planters, often without any experience, and consequently nothing to guide them, were almost bound to make mistakes of this kind which as time goes on will have to be rectified. Numbers of trees are now being yearly headed back, and approved varieties grafted thereon.

In a local paper here only this week it is stated that the Kootenay Fruit Growers' Union shipped out eigthy-four varieties of apples this season, and the manager is most emphatic in drawing attention to the absolute necessity for reducing the number. There can be no doubt whatever that the most satisfactory plan would be for the growers in each district to ascertain which of the few good marketable varieties succeed best in their localities and to specialize in these kinds only and weed out all others.

I cannot believe that there is very much in this question of the superiority of flavor. Of course, it may be true to a certain extent, especially when the trees have experienced a check of any kind, but I do know that I have tasted apples grown in British Columbia of such varieties as Gravenstein, Cox's Orange Pippin, and Northern Spy, Delicious and Wagner, of superb flavor, that I am quite certain would be hard to beat in Ontario or anywhere else. As to size and color, it goes without saying they could not be excelled at all.

Growing Plants for Christmas Use

Henry Gibson, Staatsburg

PLANTS that are required to bloom through the holidays should now be well under way. Any that are at all backward should be left to come along and furnish flowers later, as any attempt to force them with only a little over three weeks to Christmas would result in failure. Strict attention should be paid to the temperature and watering, whether the plants are growing in a greenhouse or in the living-room.

In order to have Primula Obconica at its best for Christmas, the plants should have a light, sunny position, with a temperature of 50 degrees at night. If grown in a greenhouse, place them as near the glass as possible. If you have a number of small plants that are not likely to please you, put them together in large pans, taking care to have each pan a distinct shade. If the pans are made up now they will be established before the holidays, and no doubt give you more satisfaction than a lot of small pots would.

The next three weeks in a temperature of from 50 to 55 degrees at night will bring Primula Sinensis along in fine condition. The scarlet shades seem to bloom somewhat earlier than do the white and pink, but do not worry if there are a few laggards; they will be found very useful during the early weeks of the New Year. If any plants are pot-bound, a pinch of some highly concentrated fertilizer is to be preferred to repotting, which would cause them to develop new roots instead of flowers.

Cyclamen should have their flower stems well above the foliage by this time, and many of them will have their flowers well developed. A light, sunny position suits them best, with a temperature of 50 to 52 degrees at night. Do not attempt to force these subjects, as they resent a high temperature. Applications of diluted liquid manure, soot water, and an occasional dose of clean lime water are very beneficial.

There are few more popular Christmas plants than the azalea, particularly the brighter-colored ones. Any that are intended for Christmas will have been in a warm room or in the warm end of the greenhouse for some time now. If a few of the flowers are now expanded, and the majority of the buds show in color, they are just right. Any that are not so far advanced should have a temperature of at least 65 at night to bring them along. Spraying freely and watering with lukewarm water will help them considerably. Any young growths that appear as a result of forcing should be rubbed off, as they check the development of the flower buds. When nicely in flower, remove them to cooler quarters, but do not let the change be too sudden so as to cause wilting.

POINSETTIAS

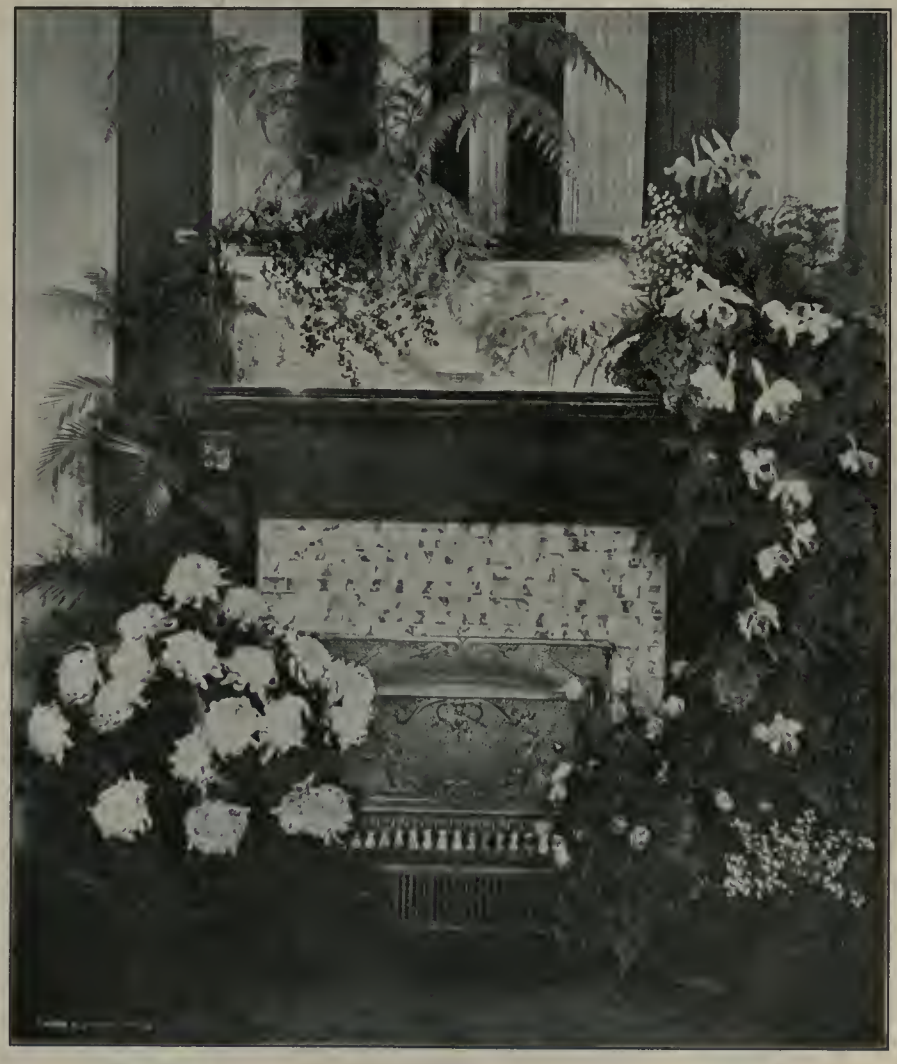
The brilliant scarlet poinsettias are among the most desirable Christmas plants. The bracts of these should now be fairly well developed, when a temperature of from 60 to 65 degrees at night will bring them along in fine shape. Any that have the bracts fully expanded can readily be held for a week or two, but do not, however, put them into a really cool house, or the results will be disastrous. They will stand 50 degrees at night without any ill effects.

The greatest drawback to poinsettias is the falling of the bottom foliage. This is invariably the result of careless watering more than anything else. If you want to have stems clothed to the bottom with foliage, pay the strictest attention to watering. Avoid cold draughts and low temperatures.

There is frequently trouble in keeping poinsettias plump when cut. If cut and put into cold water, wilting follows just the same as if they had been left out of water. This difficulty is overcome by dipping the cut ends immediately after cutting in water that is boiling or nearly so.

There is nothing that gives such a touch of Christmas to the living-room as the berried plants, Solanums and Christmas peppers. The Solanums can easily be brought along by cool treatment with plenty of water, but the peppers want warmer treatment. Any that are backward should have a warm, sunny position to color up the berries.

Christmas lilies must now have the buds starting to open. Then in a temperature of 60 to 65 degrees at night they will be all right. These cold storage lilies which are found at this season, do not make good pot plants, as they lack the vigor of the newly-imported bulbs, and they produce a smaller num-



The First Prize Mantel Decoration at the Ontario Horticultural Exhibition
Arranged by S. A. Frost, Toronto.

Pumpkin Vines as used on the Back Verandah of Mr. W. D. Grenfell, Stratford, Ont.

ber of blooms per bulb, nevertheless they are very desirable for cutting.

Begonias, Lorraine and Cincinnati should be in fine shape whether they have been subject to warm or cool treatment. Those grown cool take longer to develop into desirable specimens, yet some first-class plants are produced under such treatment. Plants that have been subject to a temperature of from 60 to 65 degrees at night, and have the flowers well advanced, will do with cooler treatment from now on to the holidays. Don't let the change be too sudden, and be sure and give them a sunny position and a fairly moist atmosphere. Begonia Cincinnati is by far the better house plant of the two, and should be better known among amateurs. It requires just the same treatment as the Lorraine, save perhaps it is a little easier to manage.

FERNS IN THE HOUSE

The nephrolepis is still the great fern for house culture. The old Boston variety, N. Bostoniensis, is the most popular, but there is a wide assortment of others. N. Whitmani compacta, Elegantissimi, Todeavideo, are very desirable varieties. One of the finest and most beautiful house ferns is Cibotium Schiedei. It is really surprising how much ill-treatment this fern will stand without showing any ill effects. Another sort that stands dry heat fairly well is Cyrtomium falcatum. Adiantum farleyense is especially handsome as a house plant, as, indeed, are all the adiantums, but the slightest chill and one drying at the roots, and they are of no further use. This holds good with all ferns to a greater or lesser degree. Watering should be faithfully done, and an even temperature maintained at all times. The nephrolepis varieties that are well established in their pots will be benefited by an application of some highly concentrated fertilizer once a week.

Pandanus Veitchii and many of the highly colored crotons and dracaenas make excellent plants for warm rooms. All will stand drying heat with little injury. None of these plants, however, should be exposed to a temperature lower than 50 degrees, or they will show their resentment by dropping their foliage.

If there are any plants that you want for home use or to present to a friend, which do not happen to be in the collection that you are bringing along for Christmas, it is advisable to order them from the florist now. Pay a visit to his greenhouse while he has time to take you round and show you the most desirable specimens. Place your order, and have it delivered just when you want it. Two weeks from now your florist will be so busy that he won't have time to show you round as he would like to. Moreover, if you delay too long the best plants will be sold, for it is with the florist as with all others, "first come first served."

Arbors in the Garden

P. W. Powe, Cainsville, Ont.

Most people seem to think that when the last bloom is gone their year's work in the garden is finished. If you want to make a success and a beauty spot of your garden you must not neglect it a single day until the garden is deep under its winter coat of snow. Even then you may order from a carpenter or make yourself those unique and ornamental wooden arches, arbors and fences of trellis work of many kinds, which can be made at little cost.

Who does not enjoy going into a well-kept garden which contains nicely arranged arches and arbors. They are sure to make you anxious to own one of your own in which to spend the summer evenings or to rest on Sundays. Best of all they are easily and cheaply made. Obtain from the lumber dealer strips of pine one inch by two inches, and from ten to twelve feet. A few two by four scantlings, nails, and tools, are all that is then needed. You can readily design and erect your own structure.

Erect it in some secluded spot which you can make beautiful with vines and flowers, and ornamental bushes. Do not build too large a one or it will make an unsightly instead of a beauty spot. When you have erected your arbor you must decide upon what vine you will use to cover it. The clematis is one of the best. Any of these are suitable, Jasmine, Virginia Creeper, Cinnamon Vine, or the Kudzu. These make a fine rapid growth. A rose bower is magnificent.

Training Pumpkin Vines

W. D. Grenfell, Stratford, Ont.

Our back verandah, covered with pumpkin vines, attracted some attention here last summer, and a few notes about it may be of some interest to readers of The Canadian Horticulturist. The accampanying illustration was taken about the middle of August. The vines had to be trained up as their natural tendency is to trail along the ground.

The fruit does not show in the picture, but there were several quite large pumpkins. They had to be supported, as otherwise they would have torn the vines from the supports by their weight. This vine gives a good shade, and there were no insects on it, except the bees in the blossoms. I have thought of trying the dipper-gourd in the same way, as it has a rapid growth, fine dark foliage, and pure white blossoms.

The Care of House Plants

Henry Gibson, Staatsburg

The period when plants are removed from the garden to the house is a trying one for plants. Out of doors they have been accustomed to fresh air, moisture, and so forth, and not very high temperature. In the house conditions are greatly changed; the air will be dry, and there will be heat of an enervating character because of the lack of moisture in it. Leave the windows open, and shower the plants every morning. if the weather is pleasant. Use no fire heat unless it is quite cold and then only sufficient to take away the chill. By a little care in this respect your plants will get accustomed to the new conditions by such easy stages that by the time the cold weather arrives they will not mind it so much especially if one is careful to admit plenty of fresh air during the middle of the day.

Christmas Flowers in the Home

E. F. Collins, Toronto, Ont.

MANY and varied are the efforts made in the majority of homes to secure a festive appearance at the Christmas season. Nothings assists to attain this effect more than well-grown plants or cut flowers if their size and color is chosen with the knowledge that they will harmonize with the interior decorations and the furniture used in the various rooms of the home.

Use palms for the front hall. If the ceilings are lofty use Kentia or Areca; if they are rather low, with heavy trimmings, use Phoenix Roebelenii in good, rich-looking earthenware jardinieres in preference to brass. Around these may be grouped two or three pairs of poinsettias, the rich, red buds producing a beautiful effect with the green foliage. This portion of the home may be further embellished by the addition of a good specimen of aspidistra, or large ferns of the Nephrolepis type. The old Bostoniensis fern is grand, or some of the other varieties, such as Whitmani, Amerpholii, or Dreerii. To these may be added one or two well-berried plants of Solanum, which if used for mantel or plate rail decoration, in conjunction with plenty of well-berried holly, will produce a fine effect.

Decorating the home library is often a problem of the housewife. The severe lines of the bookcases and usually heavy furniture call for strong colors, rather than any delicate shade. Palms may be used here also, as well as good sized plants of Pandanus Veitchii, the light green and white foliage of which produces a most beautiful effect. Dracaena, Lindeni, Victoria, Terminalia, Godseffiana, or Cooperii in plants may be used and add to this well-berried holly made up into wreaths of various sizes and draped over the white statuary and hung from the bookshelves in suitable positions.

Should the table be a fair sized one, place a vase of three dozen crimson carnations or two dozen Richmond roses on it, while nearer the window, and perhaps a little to one side on a pedestal, place a vase of white Killarney roses; if the window curtains are white, use a well-flowered plant of crimson cyclamen or poinsettias.

Much care must be used to produce a refined, rich, and yet delicate effect in the drawing-room, with its various colors in upholstered furniture and bric-a-brac, china or ivory ornaments, and gilded mantels and picture frames. Commencing at the mantel, the edges may be draped with good strips of smilax or Asparagus Plumosus, letting a few ends trail over the glass to be reflected into the room. Add to this some orchid blooms, say Cucidius Varicarkis or Tigrinius, now group over one corner of your mantel shelf a nice plant of Whittmanii fern, which would droop over the edges so as to hide the pot. Finish this by placing in among the fern fronds about a dozen Cypripedium Sanderii, or any of the pale yellow types, and a very fine effect is produced. Should the grate or fireplace be an electric one, or not in use, so much the better, as you may continue the floral decorations to the floor by using good sized ferns or palms with poinsettias and white azaleas, or well-berried Solanum.

Plants for the various window sills or recesses may consist of white or pink cyclamen, azaleas, begonia, Gloire de Lorraine, miniature hyacinths, lily of the valley, and the white or pink shade of well grown primulas. All these plants look best when placed in china vases, decorated in very light or delicate shades: The less color, the better effect will be derived from the flowers. The French Ivory rose is perfect for the home decorations, and will be much used when it becomes better known.

USE OF CUT FLOWERS

Cut flowers may consist of American Beauty roses, in large vases; Cattleya Labiata and Percivilleana with Valley for low glass bowls, or white and pink carnations, with asparagus or smilax trailing around the stems of the vases. It would not be nice to try and use holly in with any of the pink shades, if cut flowers or plants, but should there be an alcove or doorway with dark colored columns, or white enamel, holly wreathing may be used to good effect by twining it loosely around them and suspending a holly wreath above the doorway, with a spray of mistletoe in the centre.

The dining-room at Christmas—what memories of days that are past do these words bring to our minds, and who can help but feel that he or she must associate the holly in the pudding, with holly on the walls, holly wreaths in the windows, bright red colors and green foliage everywhere: Add to this Richmond roses and lily of the vally for tables and buffet, with the window recesses grouped with ferns, poinsettias, and white azaleas, mistletoe hanging from the electrolier, with holly wreathing drooping gracefully from the ceiling, and it will create a most beautiful effect.

THE BEDROOMS

Cut flowers only should be used in the bed chambers, or dressing-rooms, and not too many of these, probably one vase of carnations or roses for the bed chambers and either violets or valley for the dressing-rooms.

Made-up baskets and hampers of various designs and colors are now made up by the retail florist, but only a small percentage of them are filled with anything like good taste as regards color effect. When they are well done, nothing gives so much pleasure to your friends as a present of one of them.

While many grades and qualities of plants and cut flowers are offered, it is

Some of the High Class Chrysanthemums and Decorative Displays Made at the Recent Ontario Horticultural Exhibition

Small Space Used to Good Advantage
Residence of Mr. Winterburn, Walkerville, Ont.

wise to take the best only, and if the purse is limited, reduce the quantity rather than the quality, and on no account tolerate any of the artificial plants or fake colored flowers in your home. Nothing lowers the tone of refinement in your home as much as the use of such absurd imitations.

The following is a short list of plants and cut flowers in their order of merit:

Palms—Kentia, Areca, Phoenix.

Ferns — Bostoniensis, Whitmanii, Pteris, in variety, Cibotium, Schiedei, Adiantum, Farleyense, Pandanus Veitchii.

Dracaena, Lindeni, Cooperii, and Terminalis.

Aspidistra, small sized crotons, Asparagus Plumosus, Spengerii.

Poinsettias, Ardisia, and Solanum, well berried.

Azaleas, cyclamen, Primula obconica, and Sinensis.

Begonias, Gloire de Lorraine, and Cincinnati.

Pans of white Roman or miniature hyacinths. Cut flowers: Roses, carnations, violets, lilies, orchids (in many varieties), valley, and late white or yellow chrysanthemums.

Treatment of House Plants

P. D. Powe, Cainsville, Ont.

DURING the winter months no house should be without at least a few potted plants. The attendance and labor required is trivial in comparison to the cheer they bring to any home. If you have not a well prepared soil at hand, it will pay you to buy from a local florist all you will require. But to those who would prepare their own, I recommend the following: One-third friable loam, one-third leaf mould, and one-third sharp sand. This will be found good for most plants.

Re-potting should be done at least once a year, and with most plants from two to three times is best.

Watering is a point on which many house growers fail. They generally try to follow greenhouse rules and most always come a cropper. Never allow the water to stand in the saucer. Always water thoroughly so that the whole pot is soaked, but do not water too often. The plants need water if the pots give a clear ring when tapped with the knuckles. Usually house plants need water about once a week.

TEMPERATURE REQUIREMENTS

The proper heat for the room containtaining plants is from 60 to 70 degrees, though some plants demand a higher temperature. Almost any kind of heating will do so long as an even temperature is maintained. Where gases are present a vessel of water placed under the shelves will do much to remedy the evil.

Great care must be exercised in the ventilation of the room. If a cold, frosty draft strikes your plants you are done. The best plan is to air from the top by letting down the upper sash of the window, at the same time covering over your plants with a sheet of newspaper.

Each week the leaves of plants should be sponged as follows: Get a pan of warm soapy water (not hot) and a soft sponge. Take a leaf in your hand and gently sponge both sides. This sponging removes many pests such as the aphis, red spider, lice and mealy bug. It also keeps the plant healthy in the same manner as a bath does the human body.

At this season insects breed rapidly, because the conditions that generally exist in the house are extremely favorable to their development. Make sure that your plants are perfectly free from them and it would be well to treat them to a bath in an infusion of fir-tree oil. If one aphis is found fumigate the whole collection. Precautions are never useless, for eternal vigilance is the price of freedom from insects even among house plants.

Flower Gardens of Walkerville

W. H. Smith, Sec'y, Walkerville Horticultural Society

The window boxes of Mr. Montrose, of Walkerville, whose home is one of the attractive ones of our town, and whose garden was illustrated in the April issue of The Canadian Horticulturist, are filled to overflowing with trailing vines, coleus, geraniums, petunias, and hanging fuchsia, the whole making one mass of color from the ground half way up the windows.

The illustration here shown reveals the residence of Mr. Winterburne, Argyle Road. The vases are filled with blooming plants, the pyramids of boxwood, the tripod with its load of fragrance, the palms and hydrangea in the shade of the porch; the masses of geraniums along the walk; the border in front of the house a riot of color, containing geraniums, coleus, salvia, heliotrope, larkspur, and the two clematis, one the large purple Jackmanii and the other Clematis Coccinea, with its small red Japanese lanterns—all colors blending to make one perfect picture.

Peony Culture

J. H. Bennett, Barrie, Ont.

The peony is practically if not absolutely immune from disease. If the grower secures healthy plants to begin with he will have nothing to fear.

The only insect which even slightly injures the peony is the Rose Chafer, which is sometimes found eating the petals of the flower. However, the peony, with the exception of the very late varieties, has usually done blooming ere this pest appears. It would be wise where the chafer is annually very troublesome to omit the later sorts. Even if attacked by this insect the bloom is so very large and has such dense petalage, that inasmuch as the bug usually buries itself deep in the petals it does not disfigure the bloom as it does a rose or other flower.

Shrubs for Lawns Surrounding Public Buildings*

Roderick Cameron, Toronto

IN the Old Land and on the Continent, nearly all grounds surrounding public buildings are planted with evergreens. This gives a cheerful effect during the winter months, as well as during the summer. But in Ontario we must abandon all hope of success in growing such plants unless they are used and treated as sub-tropical plants. This could be carried out on a small scale by planting in beds or amongst other shrubs. The methods of caring for evergreens are well known to most gardeners, so that I need not detail them here, but shall proceed to the subject first mentioned.

Most buildings look bare in this country when lacking both flowering shrubs and vines about them, and are improved when either are used. A few neat shrubs, planted in the angles of a building, and a few vines to grow on it, not necessarily to cover it, take the bare look away. If some Tecomas and Celastruses are planted along with the Ampelopsis, particularly in the angles of a building, the one helps the other to relieve the sameness. The Tecoma blooms hang out beyond the flat background of the Ampelopsis and give a pleasant effect. The same may be said about the Celastrus, but its beauty begins when winter is at hand. The first frost bursts open the seed-pods, exposing the orange red seeds that hang down on silken-like threads from the pods, producing a warm appearance when the ground is covered with snow.

Celastrus scandens is our own native plan found in the woods, but better known by the name of staff vine. Celastrus paniculatus and Celastrus punculatus are both Japanese varieties and are hardy.

The planting of shrubs around the base of a building depends greatly upon the style of the building, whether it would be an advantage or not. The north side of a building must have shade-loving plants, such as Caragana arborescens (Siberian Pea Tree), Hydrangea arborescens, Cornus spaethii, Cornus variety elegantissima variegata, Corns siberica, Kerria Japonica, Kerria Japonica fl. pl. and Kerria Japonica variegata, as border plants, Philadelphia, Coronarius foliis aurea, Rhodotyphus Kerriodes, or White Kerria, Ribes aureum (Missouri Currant). From the plants mentioned may be selected foliage, bloom and fruit, as well as colored bark to suit the taste of any individual.

For the east side of a building any of the best flowering shrubs will answer, as it gets the morning sun yet it is not too long exposed to the same, and plants in this situation get the moisture when it rains.

The west side of a building is the difficult one for which to prescribe. It is so protected from all moisture during the summer with high walls and a projecting roof that artificial watering must be resorted to almost daily to ensure the development of the plants. This watering is more effective in the evening than during the day. The plants should be well sprinkled overhead to keep down insect pests such as aphis and red spider, the latter being the most destructive pest to plants in such positions. If this watering is well attended to, the same varieties of plants as are mentioned for the east side may be grown here.

THE SOUTH SIDE

On the south side of the building, where the sun is blazing hot all day and the heat reflected back from the wall, it is hard to get plants that will not be destroyed by insects, or the foliage be burnt by the sun.

In this position the more upright forms seem to answer better than the low, flat-headed ones. I find that Aralia spinosa, by some called Japonica, and Tamarix parviflora are two excellent plants. Forsythia suspensa is always clean and tidy. Spiraea prunifolia flore pleno, viburnum plicatium, viburnum tomentosum (both from Japan), can be used with Spiraea Anthony Waterer towards the outside. Philadelphus Coronarius aurea always looks well among the other shrubs on account of its golden foliage. Dentzia Lemonei and Deutzia gracilis are about our dwarfest shrubs. Therefore, they must be planted towards the edge. A few of the dark foliaged Canna, King Humbert, would brighten up a border of this sort.

*Extract from a paper read at the recent convention in Toronto of the Ontario Horticultural Association.

Strawberry Patch in Quebec

D. E. Lothian, B.S.A.

Two of the greatest hindrances to commercial strawberry culture in the province of Quebec, are late frosts and long midsummer droughts. For many years it has been the habit of growers in the Middle States to prevent this late frost by smudging, but they found that the injury resulting from light frosts, such as ours are, may be prevented by spraying. Spraying will also overcome the drought trouble, lately so troublesome.

At Macdonald College there has lately been installed a long perforated iron pipe which taps the water main running through the farm. This pipe rests on wooden trestles about three to four feet high, and the water pressure is sufficient to cover a considerable area of the celery bed over which it is placed.

To strawberry growers in this province who are fortunate enough to be located at the side of streams or who have access to water power, we would suggest that an arrangement similar to that existing at Macdonald College might be applied with advantage to their strawberry patch, causing higher yields and better returns.

A Bench of Chrysanthemums in the Conservatories, Queen Victoria Park, Niagara Falls, Ont.

Vegetable Growers Hold Their Annual Conference

THE ninth annual convention of the Ontario Vegetable Growers' Association, held in the Parliament Buildings, Toronto, Nov. 19th, was attended by a strong representation of enthusiastic and wideawake members of the Association. The members seemed to have attended with the intention of imparting and receiving as much helpful knowledge as possible in the limited period of time available. Cooperation was the strong point emphasized.

President C. W. Baker, London, Ont., gave the members a hearty welcome. His outlook on the future of the Association was most optimistic. "Get your hand out," he said, "and let's get better acquainted. Let's have a real heart to heart talk. It is our privilege, our duty and our opportunity. Let us dream dreams of the garden of Canada and its future. We can best keep up-to-date by being members of the Vegetable Growers Association. Individualism is a back number." Mr. Baker recommended the following work for the ensuing year: The organization of new branches, following up the proposed legislation dealing with weights and measures by the Dominion Government, the encouragement of the branches to increase their membership, and buying and selling cooperatively. He also suggested having a trade paper, or a page in some farm paper devoted to this work.

Mr. J. Lockie Wilson, secretary-treasurer, reported splendid work by the Association in the past year. He emphasized the fact that the market end of farming is where emphasis should be laid. Brain as well as muscle, he said, has to enter into this work. We can win out if we have cooperation. Mr. Wilson discussed the advisability of having a trade paper for the Association. He was opposed to an organization of this kind having an official organ but favored the idea of the executive getting in touch with a number of the leading papers so that the association might from time to time send in information of interest to vegetable growers. He believed there would be no difficulty in getting a score of papers to take up this line of work.

"Irrigation and its practical results," was the subject on which Mr. J. J. Davis of London, Ont., based his remarks. He said that the first time he used water for his crop was on a large patch of pickling cucumbers. Although he had a very crude system, it opened his eyes to the advantages of irrigation and as a result he installed what is known as the Skinner method of irrigation. "I believe," he said, "that if it wasn't for the water I would go out of the gardening business." He estimated the cost of his equipment at about one thosand dollars. The members were greatly interested in his address at the close of which considerable discussion took place.

Hon. J. S. Duff, Minister of Agriculture, congratulated the Association on its success from year to year. "You have branched out," he said, "and your sphere of work has its ramifications in every portion of this great province. We are coming to a time when truck farming will be more and more a speciality."

A problem of great moment to vegetable as well as fruit growers is the transportation problem. Robert Thompson of St. Catharines, dealt with this subject. He strongly favored the shipping of produce by freight rather than by express. Shipping by freight enables those sending off the shipments to load the cars themselves and in this way prevent many broken packages and damaged produce.

An address on "Cooperation in the Purchase of Supplies and Marketing of Produce," by Mr. W. J. Kerr, Woodroffe, showed that he was working with the best interests of the Association at heart. Mr. Kerr was last year appointed purchasing agent for the association and his seed price list indicated that a large percentage of the profits go into the hands of the members who purchase from him. Several of the members gave him their orders for seeds for next year.

Prof. A. H. MacLennan, of Guelph, suggested that letters of regret be sent to Mr. Thomas Delworth, of Weston, and Mr. Jos. Rush, Humber Bay, two worthy members of the Association, who were unable to be present. Mr. Wilson said he would take this matter in hand.

S. C. Johnston, B.S.A., gave some suggestions on suitable types of greenhouses and progressive vegetable culture. He said that vegetable growing under glass is becoming one of the important features of agriculture. Some of the points in building a greenhouse are: Suitable location, ample means of drainage, avoid cold, wet spots, and make exposure an important feature. He also discussed the advantages of various kinds of houses. For the progressive vegetable grower he enumerated methods and appliances that are being adopted by vegetable men in the States, which might be applicable to Ontario vegetable growers.

The report of the delegate to the American Vegetable Growers' Convention was given and it was suggested that this Association be invited to hold their convention in Toronto next year. This matter was left in the hands of the executive.

At the evening session Prof. MacLennan gave an address on "Diseases of Vegetables," dealing particularly with the use of Bordeaux mixture. A lantern talk was also given by Mr. W. R. Cobb, New York, on "Greenhouse Construction and Heating.

Vegetable Growing Experiments*

A. H. MacLennan, B.S.A., Guelph, Ont.

IN many sections of Ontario it is becoming a proplem to obtain the necessary quantity of barnyard manure used in intensive gardening. As the industry grows, this will become more acute as it has in many parts of the United States. On this account it is necessary that we make use of commercial fertilizers.

For the past three years we have been carrying on tests with commercial fertilizers in different combinations in our College. While this work has been very successful, it brings one to the conclusion that if we are to obtain results that will be of value to our commercial growers, we must carry on tests in each district. These tests need not be elaborate, involving a great amount of labor and figures, but can be judged by comparison. They would give us a much more definite idea of how we must combine the different constituents to meet the needs of each particular section and crop.

In talking this fall with a couple of men who represented large commission houses in Ontario, they spoke of the increasing demand for head rather than leaf lettuce. You will remember that this matter was brought up at your last meeting. I have been experimenting for two or three years to find out what conditions are necessary for its growth here in Ontario. We found that in our clay soil sub-irrigation is absolutely essential, but I should think in the sandy soil that many of you have in your greenhouses, the method used in Boston of soaking the soil two or three days ahead of planting, would answer the purpose. I find also that transplanting into two-inch pots before they are placed in the bed helps greatly to obtain a perfect stand.

I have also been growing cauliflower among my third or fourth crop of lettuce. I find a good demand for it at a fair price. We start the seed in late November and carry the plants in two and a half or three inch pots until ready for the bed.

For some years I have been trying to breed a cucumber of the American type with the fruiting habits of the English varieties which will set freely without being polinated. You all know that in dull weather most of our American varieties refuse to set unless bees are kept in the

*Extract from a paper read before the recent annual convention in Toronto of the Ontario Vegetable Growers' Association.

Some of the Plate Fruit and Honey Exhibits made at the Ontario Horticultural Exhibition Last Month

house. I have several strains which appear of exceptional value and whose appearance has suited almost everyone who has seen them. These I hope in another year to be able to pass out to you for trial.

I have also been working on tomatoes. For indoor work I have been trying to breed the good qualities of the Industry tomatoes—especitlly its disease resistance, on to the pink tomato which I obtained in Grand Rapids, Mich., four years ago, and which has exceptional thickness of flesh with thin skin but good carrying qualities. These I hope also before long to be able to give you to prove out. I have made it a practice to send out seed of varieties which have proved of value under our conditions, to any who desired, hoping by this means to be able to give you something which will increase your returns.

We all know that frequently we obtain seed which is not such as is represented, and probably have tried to find some way to overcome this difficulty. For a number of years we have grown seed of various vegetables as radish, lettuce, beets, cabbage, tomatoes, onions and melons, with excellent results. The Dominion Government last year made some provision for assisting in this work. Can we not help along by experimenting, under the care of your Association, to find where we could grow seeds commercially in the province?.

Would it be possible for you to add cabbage and sunflower to the three crops already in the crop competitions? They are very important crops in the province, and could be judged in the field in the fall, and then shown at the Horticultural Exhibition in November. The interest in the competition before has been great, and the addition of these crops should tend to increase their interest.

Soft Rot of Vegetables

B. Blanchrd, O.A.C., Guelph, Ont.

That the soft rots of our comon garden vegetables are mostly caused by bacteria is a fact not always realized by gardeners. Research work carried on during recent years has proved this to a certainty.

The most common result from the attack of the bacteria is a soft dark rot of the affected parts. All plants are composed of cells, each cell being enclosed in a cell wall. In the early stages of the disease the bacteria live between the cells. They produce substances which have the power of destroying the cell wall. After the cell wall has been thus broken down, the organisms infest the whole tissues, which become a soft, pulpy mass.

The bacteria generally gain an entrance through an injured portion of the plant, such as an insect bite. A wet season, too, is much more favorable to the spread of the disease than is a dry one. When storing vegetables care should be exercised in sorting as the rot will spread from a diseased specimen to a healthy one if they be touching.

A most important control measure is to keep insects in check. Caterpilars are largely responsible for the spread of rot in cabbages. One part of Paris green to fifteen parts of flour, sprinkled on the cabbages, will keep them down. It is possible for the bacteria to live in the soil for several years. It is difficult for them, however, to gain acecss to an uninjured plant. Care then should be taken in cultivating the plants so as not to injure them in any way.

All diseased plants or parts should be removed and burned as soon as noticed; should the disease become general it is best to harvest the good specimens and burn the rest. Practically the same organisms cause soft rot in cabbage, cauliflower, radish, carrot, mangle, turnip, parsnip, potato, celery, onion, asparagus and rhubarb.

Protecting Small Fruits.—Where winter protection is necessary the strawberry bed should be mulched with long, strawy stable manure, after the ground freezes, but before severe weather. Cover the plants two inches deep and two or three between the rows. Raspberries should be protected by laying them down. Bend them over near the ground and hold in place by a shovelful of earth near the tips. Straw, hay, or corn stalks, or even soil, can be used for mulching, but it should not be put on before the first frosts.—H. Gibson, Staatsburg.

Too much stress cannot be put upon careful handling of any crop to be stored and during storage. Each bruise or cut gives the proper conditions for the development of disease and if rough handling is permitted we are sure to find decay starting from such places, eventually infecting the whole crop.

The Canadian Horticulturist

COMBINED WITH

THE CANADIAN HORTICULTURIST AND BEEKEEPER

With which has been incorporated The Canadian Bee Journal.

Published by The Horticultural Publishing Company, Limited

PETERBORO, ONTARIO

The Only Magazines in Their Field in the Dominion

OFFICIAL ORGANS OF THE ONTARIO AND QUEBEC FRUIT GROWERS' ASSOCIATIONS AND OF THE ONTARIO BEEKEEPERS' ASSOCIATION

H. BRONSON COWAN Managing Director

UNITED STATES RERESENTATIVES
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1. The Canadian Horticulturist is published in two editions on the 25th day of the month preceding date of issue. The first edition is known as The Canadian Horticulturist. It is devoted exclusively to the horticultural interests of Canada. The second edition is know as The Canadian Hortioulturist and Beekeeper. In this edition several pages of matter appearing in the first issue are replaced by an equal number of pages of matter relating to the bee-keeping interests of Canada.

2. Subscription price of The Canadian Horticulturist in Canada and Great Britain, 60 cents a year; two years, $1.00, and of The Canadian Horticulturist and Beekeeper, $1.00 a year. For United States and local subscriptions in Peterboro (not called for at the Post Office), 25 cents extra a year, including postage.

3. Remittances should be made by Post Office or Express Money Order, or Registered Letter.

4. The Law is that subscribers to newspapers are held responsible until all arrearages are paid and their paper ordered to be discontinued.

5. Change of Address—When a change of address is ordered, both the old and the new addresses must be given.

6. Advertising rates, $1.40 an inch. Copy received up to the 20th. Address all advertising correspondence and copy to our Advertising Manager, Peterboro, Ont.

CIRCULATION STATEMENT

The following is a sworn statement of the net paid circulation of The Canadian Horticulturist for the year ending with December, 1912. The figures given are exclusive of samples and spoiled copies. Most months, including the sample copies, from 13,000 to 15,000 copies of The Canadian Horticulturist are mailed to people known to be interested in the growing of fruits, flowers or vegetables.

January, 1912.....	9,988	August, 1912.....	11,148
February, 1912....	10,437	September, 1912...	10,997
March, 1912.....	10,877	October, 1912.....	10,971
April, 1912.....	11,788	November, 1912...	11,162
May, 1912.....	12,112	December, 1912....	11,144
June, 1912.....	10,946		
July, 1912.....	10,986		132,556

Average each issue in 1907, 6,627
" " " " 1908, 8,695
" " " " 1909, 8,970
" " " " 1910, 9,067
" " " " 1911, 9,541
" " " " 1912, 11,037

November, 1913..... 13,778

Sworn detailed statements will be mailed upon application.

OUR GUARANTEE

We guarantee that every advertiser in this issue is reliable. We are able to do this because the advertising columns of The Canadian Horticulturist are as carefully edited as the reading columns, and because to protect our readers we turn away all unscrupulous advertisers. Should any advertiser herein deal dishonestly with any subscriber, we will make good the amount of his loss, provided such transaction occurs within one month from date of this issue, that it is reported to us within a week of its occurrence, and that we find the facts to be as stated. It is a condition of this contract that in writing to advertisers you state: "I saw your advertisement in The Canadian Horticulturist."

Rogues shall not ply their trade at the expense of our subscribers, who are our friends, through the medium of these columns; but we shall not attempt to adjust trifling disputes between subscribers and honourable business men who advertise, nor pay the debts of honest bankrupts.

Communications should be addressed
THE CANADIAN HORTICULTURIST,
PETERBORO, ONT.

EDITORIAL

TRACING THE MONEY

The editor of the Grimsby Independent has been occupied recently endeavoring to trace the final resting-place of the bulk of the money that drops out of sight somewhere between the point where the fruit grower is paid for his product and where the city consumer pays out his money for the same article. The following is a report of his investigations and his conclusions based thereon:

"I have traced a basket of peaches from Grimsby to Queen Street West, Toronto, and made the following discoveries—First, the fruit grower got forty cents for his basket of fruit, the railway company got five cents, the commission house got four cents, landing the basket of fruit in the hands of the retailer in Toronto for forty-nine or fifty cents. The consumer paid at a retail store on Queen Street West, Toronto, ninety cents. Now this is not the history of only one basket of fruit, but it is the history of thousands and tens of thousands and it is a very conservative history, because there are many choice baskets, for which the grower does not get anything more than the usual price in his home town, and the retailer puts them up as extra choice, and charges a dollar, a dollar and ten cents for them, and even a dollar and twenty-five cents. Now, what does this prove? This proves that the grower got forty cents for his basket of peaches, the railway company got five cents, the commission house got four cents, and the retail dealer got forty cents. What does that mean? It means that the retail dealers of the Dominion of Canada are getting the profits of the fruit business, instead of the growers. The railway is paid a fixed amount, the commission house gets a fixed amount, but the retailer fixes his own price and fixes it so high that he makes a hundred per cent. profit, and sometimes a hundred and fifty per cent. profit, and he injures the fruit business into the bargain."

May we be allowed to enter a dissent with the conclusion reached? Our contemporary has not pursued the investigation far enough. If the retailer is able to retain for his own benefit the enormous returns stated, then beyond doubt he is the guilty party. But is he? Let us take a retail storekeeper in Toronto, for example.

A retailer in a store on Queen Street West, Toronto, is doing business on land worth anywhere from thirty to two hundred thousand dollars a lot. Figure out what rental such a man must pay. Estimate how many thousands of baskets of fruit he must handle to pay his month's rent before he will have any profit left for himself. Consider, also, that the help he employs lives on high-priced land and has to pay high rentals—and therefore expects high wages. Consider also, that this man does business all the year round, including slack seasons when the amount of business handled is small. After doing all this, and after allowing for losses due to fruit going bad on his hands, bad accounts and a hundred and one other incidentals, figure out if the retailer is making anything like such a fortune as might at first appear. The fact is, he is not. The man who is reaping the largest harvest is the man who owns this high-priced land, who has done nothing to create its value, but who gathers in its big rentals just the same.

It may be claimed that these conditions do not apply in smaller cities, such as Berlin, where land is not so high in value, but where retailers maintain prices just the same. The reply is that land in Berlin, considering the restricted opportunities for doing business there, is just as high in value in proportion as is land in Toronto. In Berlin, as in Toronto, the store must be operated all the year round, help must be employed constantly, and the possibilities of a large turnover are much more limited.

Some years ago the milk producers in the vicinity of Toronto concluded that the milk dealers were making excessive profits. They pointed out that the milk dealers were obtaining larger returns for handling the milk for only a few hours in connection with its delivery than the producers obtained. Several hundrel of them formed a company and started in the milk business in Toronto. They soon found that the milk dealers did not have any such profits as had appeared.

The expense of doing business in Toronto is so great and the competition from others in the same business is so keen the average retailer has a hard time to continue in business. As soon as we realize this fact and begin to pay a little more attention to the landowners, whose land in some instances in a city like Toronto, is worth over a million dollars an acre, we will be hot on the scent of one of the chief factors in the high cost of living.

A WORTHY WORK

At the recent annual convention of the Ontario Horticultural Association, it was decided to appeal to the Government for an increase in the grants now given to the sixty or more local horticultural societies in the province. This was a wise move. The Ontario Department of Agriculture is now in receipt of a special grant from the Dominion Government of several hundred thousand dollars a year, which money has to be used for the promotion of agriculture including horticulture.

The Horticultural Societies' Act provides that the annual Government grant shall be distributed among the local societies in proportion to their membership and their expenditures for horticultural purposes. Every increase in the membership or expenditures of the stronger societies decreases proportionately the grants received by the weaker societies. Every new society that is organized also reduces the grant to all the other societies. During the past few years the membership of the societies has doubled, and their expenditures for horticultural purposes have increased in the same proportion. Last year, six societies ceased to exist, largely because of the difficulties they had to face in financing their work properly. The time has come when the grants to these societies should be materially increased. The work they are doing is so beneficial in character as to warrant their receiving a considerable share of the money being distributed each year to the province through the Federal Grant to Agriculture.

Eight years ago, following an editorial published in The Canadian Horticulturist suggesting that action should be taken, a few market gardeners living in the vicinity of Toronto met with the editor of The Canadian Horticulturist in the St. Lawrence Market and discussed the advisa-

bility of forming an Ontario Vegetable Growers' Association. Action resulted. Last month the eighth annual convention of this Association was held. It was largely attended by delegates from all parts of the province. This Association has active branches throughout Ontario, a large membership, and has accomplished much valuable work on behalf of the vegetable growers of the province. The reports presented by branch associations at the recent convention showed that their members have saved many thousands of dollars through cooperative efforts. Thus have the benefits of cooperative effort been demonstrated once more.

The Ontario Fruit Growers' Association is to be congratulated upon the excellent results that have followed from the appointment of Mr. McIntosh as its transportation agent. The members of the association were delighted, as they had every reason to be, with the report presented by Mr. McIntosh at their recent convention. Other provincial fruit growers' associations might well follow the example that has thus been set. A general and uniform agitation of the question of freight and express rates in all the provinces would strengthen the hands of the producers in their dealings with the railway companies.

PUBLISHER'S DESK

Our front cover illustration shows a view of a portion of the exhibits at the recent Ontario Horticultural Exhibition. As will be seen the exhibition reflected credit on the horticultural interests of the province.

* * *

This issue of The Canadian Horticulturist is a little later in reaching our subscribers than usual. This is due to the fact that the Ontario Horticultural Exhibition was this year held a week later than in former years. As a very large percentage of the readers of The Canadian Horticulturist take a deep interest in this exhibition, as well as in the conventions held in connection therewith, we felt justified in delaying publication sufficiently to enable us to publish the full reports of the proceedings which appear in this issue.

* * *

The horticultural societies of Ontario hold their annual meetings during the first week in November. The meetings held this year were encouraging in character. A number of interesting reports concerning them have reached us for publication in The Canadian Horticulturist. Owing to the fact that our columns this month are crowded with reports of the conventions of the Ontario Horticultural Association and similar organizations, we have been unable to publish these reports concerning the local societies. Otherwise they would have been published with pleasure.

* * *

December brings the ever-welcome and joyous Christmas and holiday season. May it be burdened with rich blessings and crowded with happy experiences for all the readers of The Canadian Horticulturist, is the wish of the publishers.

R. S. Duncan, who was in charge of the fruit exhibit in the made-in-Canada train, which recently toured the west, says that he found people everywhere expressing a preference for the Ontario apple. How different when we consider the package,

Ontario's Horticulturalists Meet and Confer

THE eighth annual convention of the Ontario Horticultural Association, which was held in the Parliament Buildings, Toronto, November 20th and 21st, evidently proved that this Association continues to grow in strength and public approval. Some fifty societies were represented by delegates. The convention sessions proved interesting and helpful throughout, and should benefit the over sixty local societies in Ontario.

PRESIDENT'S ADDRESS

In his presidential address, the retiring president, Rev. A. H. Scott, M.A., of Perth, spoke on the "Livability" and "Visibility" of life. "Livability," he said, "was not a word to be found in the dictionary, but next to 'lovability' it was the greatest thing in the world. No one has as yet estimated, nor can they, the power of life in the soils. What life is we know not. Life began in a garden, the first man was a gardener and life began to go wrong when the man left the garden. Gardening is the best of all toils, it is the acme of art. The charm of horticulture was in its visibility—a visibility as possible of existence in the back yard as in the bigger areas of parks and gardens."

FINANCIAL STATEMENT

The treasurer's statement showed receipts for the year of $237.37, and expenditures of $106.95, with a balance on hand of $130.78. Some sixty societies in the province were affiliated with the Ontario Association, being the largest number in its existence.

SUPERINTENDENT'S REPORT

Superintendent J. Lockie Wilson reported that six societies had passed out of existence—Cayuga, Elora, Milton, St. Mary's, Simcoe and Sudbury. There is a possibility that the Milton and Sudbury societies will be revived. The Simcoe society when it disbanded had a balance on hand of nearly $100. New societies have been arganized in Dundalk, High Park (Toronto), and Paris. Complaints have been registered by the High Park and Toronto societies over the fact that the Act limits the maximum grant they can each receive is five hundred dollars. All other societies in the province can receive grants as high as eight hundred dollars. During the year the Act was amended, enabling new societies to be organized in Police Villages having a population of not less than five hundred. Mr. Wilson urged growing towns to profit by the error of town planners in the past and at once procure ample breathing places for their citizens, and playgrounds for the children.

SOCIETY SUGGESTIONS

Mr. H. W. Brown, of the Berlin Society, believed that the Department of Agriculture would help the societies if it would distribute a circular furnishing the names of capable speakers on horticultural subjects, with a list of their ubjects and dates when the services of such speakers could be obtained. He pointed out that the Horticultural Societies Act does not facilitate work that will reach boys and girls, and suggested that a new section might be placed in the Act setting forth a basis of organization, an outline of procedure and a method of financing a "Children's Guild" or children's section of a horticultural society. The advisability of charging a smaller fee than one dollar in the case of children was dealt with. Mr. Brown advocated a copious list of options offered as premiums for both spring and fall planting, and the holding of at least one exhibition each year.

A new feature was the holding of midday luncheons, on the conclusion of which each day those present were invited to offer suggestions bearing on the work of the association. These discussions proved interesting and helpful.

Hon. W. H. Hearst, Minister of Lands, Forests, and Mines, spoke enthusiastically of the horticultural possibilities of Northern Ontario. Flowers and vegetables grown there equal those produced in any other part of the province. Gardens in Haileybury and Temiskaming have produced beds of sweet peas with stalks fourteen feet long.

Parks Commissioner C. E. Chambers, of Toronto, read an excellent paper entitled "A Park System for Small Towns," and Mr. H. J. Moore, of Queen Victoria Park, Niagara Falls, one on the "Ornamentation of Town Boulevards." Both of these papers will be published in later issues of The Canadian Horticulturist.

GREETINGS FROM THE STATES

Mr. R. B. Watrous, Secretary of the American Civic Association, showed a series of slides illustrating the three types of garden cities now being laid out and advocated in England and Germany. The speaker brought greetings from the association he represented.

Two excellent papers, one entitled "Recent Experimental Work," by F. E. Buck, of the Central Experimental Farm, Ottawa, and the other, "Vegetable Production on a Thirty-foot Lot," by Geo. Baldwin, Toronto, were well received, and will be mentioned more fully in later issues.

SCHOOL CHILDREN AND HORTICULTURE

A paper, which was so well received that arrangements were made to have copies of it printed for general distribution, was read by Mrs. R. B. Potts, of Hamilton, on the subject, "School Children and Horticulture." An extended reference to this report will be published in a later issue. Mrs. Potts told of children, backward in their school work, who had practically been remade by becoming interested in gardening. When taught in the schools, horticulture trains the head, the heart, and the hands, and brings the child in touch with life in a manner impossible under prevailing methods.

SHRUBS FOR LAWNS

Mr. Roderick Cameron, of Toronto, read a paper entitled "The Best Varieties of Shrubs for Lawns Surrounding Public Buildings," a portion of which appears elsewhere in this issue, and the balance of which will be published later.

Mr. Hugh Johnson, of Toronto, gave suggestions on the conduct of lawn and garden competitions. He advocated the inspection of lawns and gardens entered for competition at least three times in a season, spring, summer, and autumn, and that special attention be given to the owners of new houses, who, he claimed, should be put in a class by themselves.

The fixing of maximum and minimum points for the judging and a deduction of twenty-five per cent. of points for untidy or ill-kept fences were suggested, as well as the doing away with tight board fences. The beautification of fences should be an important consideration.

(Concluded on page 306)

A few years ago we used a box 9x12x18. We now use the standard size and think it alright for export purposes.—A. W. Peart, Burlington, Ont.

Ontario Fruit Growers Meet in Annual Convention

THE subject of the over-production of fruit was never before so seriously considered as at the annual convention of the Ontario Fruit Growers' Association, held November 19 to 21 in the Dairy Amphitheatre of the Canadian National Exhibition grounds. President W. H. Dempsey, of Trenton, referred to the menace of over-production in his opening address.

"The crop in storage this spring," said Mr. Dempsey, "sold at prices far under cost of production in many cases. This was the result of over-production. While last year's was not a full crop by any means, it was heavy enough to cause a slump in prices. All our selling organizations seemed to be helpless in the face of an over-crop, and the prices and profits in which we have so long believed, failed. This year with a crop almost a failure, prices have kept within reason."

Mr. Dempsey then voiced this caution: "We begin to feel that the apple business may soon be over-done, and caution seems necessary on the part of our fellow-investors and on ourselves who already know the business."

Mr. Dempsey believes that peach growers are in much the same position as the apple growers and should make further plantings with extreme caution. Cherries, too, have ceased to advance in price, which is one of the first indications of over-planting. Berries, he said, were high only because of dry weather, which cut the crop in half.

SOME VARIETIES OVER-PLANTED

The subject was referred to again and again during the convention. Prof. J. W. Crow, of the Ontario Agricultural College, admitted the truth of Mr. Dempsey's contention, but with qualifications. Some varieties, he said, had been over-planted, and as an instance he mentioned the Baldwin, one of our best commercial varieties, but one now being produced in as great quantities as the markets can stand. The lowering of tariff duties on apples going into the United States and the lowering of our own tariff walls that may follow consequent upon the demands of Canadian consumers, makes the planting of Baldwins and similar varieties even less advisable, as United States growers are heavy producers in this line. Prof. Crow, however, was not pessimistic. He predicted a great future for the fruit growing industry in Ontario if we will make the production of strictly fancy varieties our specialty. Such varieties are the Snow, McIntosh, and Spy. These varieties are always at the top of the market, and we can produce them in Canada to better advantage than any other country in the world. We will not only have a large and growing home market for these varieties, but an unlimited market as well across the line.

Mr. McIntosh, the originator of the McIntosh apple, was present when Prof. Crow was speaking, and in endorsing his views, said that this fall he had sold in Montreal well packed McIntosh Reds at seven dollars fifty cents a barrel. Mr. Dempsey himself suggested that a great market for first-class Canadian fruit could be found right in our own cities if our people were educated to appreciate the home-grown article. "Toronto people," said Mr. Dempsey, "are paying long prices for foreign fruit of inferior quality to that which they can secure at home."

Mr. Robt. Thompson, of St. Catharines, one of the largest handlers of fruit in Canada, stated most emphatically that he did not believe that there was any danger of fruit growers outrunning the demand for their products. "There are consumers enough in Canada," said he, "to use all the tender fruits that can be grown from Toronto around the head of the lakes and to the Niagara River if all the suitable soil were planted." Mr. Thompson's remedy for apparent over-production in apples last year and in peaches this year is proper distribution. He said that a splendid market could be found in the smaller towns of Ontario and the Eastern provinces if their needs were intelligently studied and consistently supplied. Speaking from a long experience with Western markets, Mr. Thompson refuted the idea that Ontario fruit is not popular in the West. He said that if one-half of what was published about dishonestly packed Ontario fruit in Western markets were true, that we would have lost that market long ago.

Mr. G. E. McIntosh, the Association's transportation agent, reviewed the transportation situation as it affects the fruit grower. His investigations and conclusions were much the same as those given in his report of last year. Mr. McIntosh expressed his belief that both freight and express tariffs were all the traffic would bear, but he did not consider these the essential points. The real grievances of fruit growers he defined as follows: Lack of railway equipment; inefficient terminal facilities; uncertainty as to rapidity of transit; rough handling; pilfering; and neglect in icing cars or heating them according to the season.

In concluding his remarks—a portion of which appears elsewhere in this issue—Mr. McIntosh made the following recommendations:

First, that an effort be made to have navigation companies handling freight and operating upon Canadian waterways, placed under the jurisdiction of the Railway Commission; second, that power be given the Railway Commission to adjudicate claims against railways or express companies not settled in 60 days; third, that the Commission be given jurisdiction in the fixing of penalties for rough handling and pilfering; fourth, that fruit inspectors be also cargo inspectors; fifth, that the express minimum be reduced from 20,000 lbs. to 15,000; sixth, that the railway companies allow free transportation both ways for men sent in charge of heated cars; seventh, that the railway companies be asked to provide a special fruit service from central shipping points in Ontario to Winnipeg during the shipping season.

These recommendations met with the approval of the members and were incorporated in their resolutions. It was decided to print Mr. McIntosh's address in pamphlet form and distribute it among the members of the association, the members of Parliament, and all others who might be interested.

PEACH DISEASES

Two addresses of great educational value were delivered by Mr. L. Caesar, Provincial Entomologist, who is always a popular speaker at fruit growers' conventions. In discussing "Little Peach and Peach Yellows," Mr. Caesar reported a continual and rapid decrease in the number of trees destroyed each year through these diseases. In 1911 sixty thousand trees were destroyed and in 1913 the number had dropped to six thousand. Mr. Caesar appealed to all fruit growers to assist him in ridding the province of these diseases. The speaker attached but little importance to the so-called cures for Little Peach and Peach Yellows, claiming that the only effectual remedy was eradication by digging and burning the diseased trees.

Mr. Caesar's second address was of wider interest. His subject was "Apple Scab," and in it he gave a survey of conditions prevailing in reference to the disease in the entire province. He called attention to the susceptibility of such varieties as Snow and McIntosh and the immunity of Blenheim, Duchess, and Golden Russet. As a general rule the worst attacks of scab can be warded off by proper spraying.

These addresses will be given almost in full in future issues of The Canadian Horticulturist.

DEMONSTRATION ORCHARDS

Intensely practical and interesting was the review given by R. S. Duncan, B.S.A., of the demonstration orchard work being conducted by him in the counties of Northumberland and Durham. Mr. Duncan described in detail the methods adopted for the regeneration of five neglected and apparently worn-out orchards, and then compared the profits made from these orchards both before and after the trees came into the hands of the department. Mr. Duncan made special reference to a two and one-half acre orchard on light, sandy soil. For three years the receipts from this orchard had been three hundred dollars, two hundred dollars, and one hundred dollars respectively. In the succeeding three years, with proper attention, receipts from the same orchard were seven hundred and fifty dollars fifty cents, four hundred and ninety-nine dollars eighty cents, and four hundred and ninety-three dollars and fifty-eight cents. By proper methods the percentage of number one apples was increased from thirty to sixty per cent. to eighty to eighty-seven per cent. Similar results were noted in the other four orchards. The increased profits the speaker attributed to good pruning, cultivation, fertilization, and spraying.

"The Pre-cooling of Fruit" was the subject of an address for which A. B. Stubenrauch, of the United States Department of Agriculture, was slated, but he failed to turn up, and his paper was read by Mr. R. R. Graham, of the O.A.C. The writer based his remarks on experimental work conducted by the United States Bureau of Plant Industry. He pointed out that pre-cooling, while of itself an important measure for the preservation of fruit in good condition, was of real practical value only when it went hand in hand with care in picking and packing the fruit. In fact, most of the paper did not discuss pre-cooling at all, all stress being laid on the necessity of careful handling. As an example of how carefully fruit may be handled, Mr. Stubenrauch made mention of the practice of some far Western growers who wear gloves when handling their apples.

(*Continued on page* 306)

In British Columbia a systematic effort is now being made to place British Columbia canned fruit on the English market. Little attention as yet has been paid to this phase of fruit marketing by the English fruit brokers and wholesale dealers. By the time that the canning industry has been well established in that province, it is hoped that an interest will be awakened in the Old Country.

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Ontario's Ninth Annual Horticultural Exhibition

The fact above all others demonstrated at Ontario's Ninth Annual Horticultural Exhibition, held in Toronto, November 18 to 22, was that fruit growers are not altogether dependent on the kindness of nature for a crop of good fruit. The past season has been a trying one for the orchardist. The severe drought extending through all the growing months has halved the fruit crop of the province and greatly reduced the percentage of number one fruit that will be packed. Those, however, who expected to see the results of an unfavorable season reflected in the quality of fruit exhibited at Toronto were pleasantly disappointed. The standard was well up to that of any previous year.

While it was evident that in some cases much picking had been required to get enough good fruit, what was shown was of good size, well colored, and free from blemish. Previous to last year's fair, it will be remembered, seasonable conditions were the exact reverse of what they have been this year. Continual wet weather had favored the development of all fungus pests and yet the fruit exhibited was clean. These two extreme years following one after the other, and with good fruit exhibited in both, prove the efficacy of advanced orchard practice.

A LARGER EXHIBIT

t The fruit show no longer exists as a separate institution. This year it was incorporated with the National Live Stock and Dairy Show, and conducted at the same time on the grounds of the Canadian National Exhibition. The fruit show, however, loses nothing of its influence by the presence of other attractions and its con-

Douglas Gardens
OAKVILLE, ONT.

"The spring of 1914 is going to be the greatest ever known for the planting out of perennials. It's in the air. Everybody wants hardy stock and is willing to pay good prices for anything that 'Comes up again the following Spring.'"

Fritz Bahr in F. E.

Our trade in the season just closed is 80% ahead of that of one year ago. We thank our rapidly growing list of patrons for this handsome increase of business: and we are looking forward with confidence to the Spring and Fall Pl nting Seasons of 1914.

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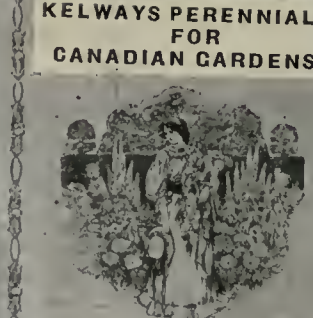

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nection with the live stock show will g the fruit growers a better opportunity advertise their products than ever befo One admission ticket at the main gate mits the visitor to all departments of fair. As the importance of the live st features become better appreciated throu out the province, much greater crowds visit the National Live Stock, Horticultu and Dairy Show than ever visited the H ticultural Exhibition as a separate in tution. It will be unfortunate, however, the horticultural features are ultimat overshadowed by the rest of the exhibitio

Ontario's Fruit Show is becoming ev year more of a box apple show. Eig years ago there were only eleven bo on exhibtion. At the fair last month th were two entries of two hundred boxes ea several one hundred box entries, numer entries in the single box classes; all which goes to show that Ontario grow are coming to appreciate the merits of box package

FLORAL FEATURES

The flower department of the fair show up to better advantage this year than e before. There was abundance of room the exhibits in the large transportati building where the fair was held, and florists took full advantage of their opp tunities, making a veritable fairyland the whole southern end of the buildi People who have seen both testify that flower department of the fair far excel that of the New York show, both in qual and beauty. Chrysanthemums and orch were especially strong. Some of the fin specimens came from the greenhouses R. Jennings and the Dale Estate of Bram ton. Many of the chrysanthemum bloo were twenty-two to twenty-five inches circumference. Sir Henry Pellatt was most successful private exhibitor. Oth florists prominent among the winners we Wm. Jay & Sons, Thos. Manton, and G Bonnett.

VEGETABLE DISPLAY

Perhaps the vegetable growers descer most credit for progress made. Their e hibits this year excelled those of previo years in both quantity and quality. The was a profusion of onions, cabbages, po toes, and all other vegetables common a uncommon. The prevalence of the d ease, Rhizoctonia among the potato ex bits shows how serious this comparative unknown disease is becoming. The inn cent-looking brown spots characteristic the trouble were in some cases found every plate of a variety. Exhibitors we numerous, there not being a single cla in which competition was lacking. T chief exhibitors were Chas. Plunkett, Rob Plunkett & Sons, and John Creighton, of Weston, F. C. Reeves, Wm. Harris, J and Brown Bros., of Humber Bay, Ja Dandridge, W. R. Trott, London, and se eral others located in or near Toronto.

Beekeepers were given the most des able position in the whole building, rig in the centre and between the flower a fruit shows. They used their space good advantage, staging an attractive e hibit of honey in the comb, liquid and sug states.

COUNTY EXHIBITS

It was a banner year for Northumbe land and Durham. Fruit growers of the united counties got well over five hundr dollars in prize money, and captured ma of the most coveted positions. Their e hibit that attracted most attention was three-hundred-box lot of Spies of splendi quality and of such uniform size and s well packed that there were exactly on hundred apples in each of the three hu

The Bee-Keepers' Review

Is out on a hunt for new subscribers and has a special offer to make to those subscribing at the present time. The regular subscription price of the *Review* is $1 per year. Our special offer is to give the last half of 1913, and all of 1914, at the regular annual price, then to those who ask for it we will include the April and May numbers containing the National Convention report for 1913. A bargain worth considering. No extra charge for Canadian postage.

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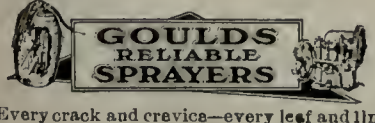
That's what users the world over are getting with the aid of Goulds Reliable Sprayers. They are built on practical, "experience-taught" lines—built to spray easier, quicker and more uniformly than others. And they do it, too!



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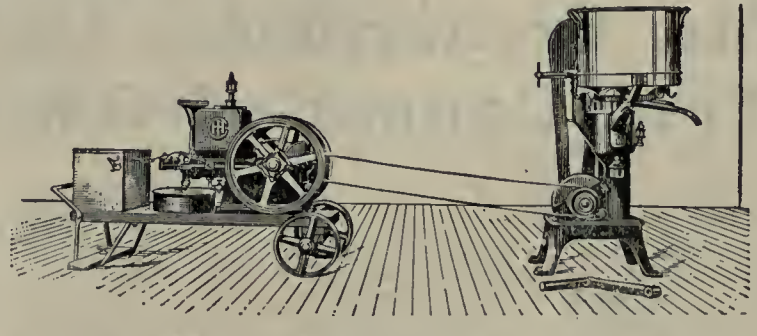

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The outfit pictured above will give you more cream from your milk, saving from $5 to $15 per year for each cow you milk; separator skim milk, sweet, warm, and wholesome, will give you healthier, fatter pigs and calves, and this again means more milk and increased soil fertility. Many more things an

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If you prefer a factory-mixed fertilizer, be sure and get one containing at least 10 per cent. of POTASH.

The present high price for apples should impress you with the importance of improving the quality and increasing your crop. It is the best quality of fruit that demands the best prices.

If you want to learn more about cultivating and fertilizing orchards, our Scientific Bureau will be glad to advise you fully. This Bureau is composed of the very best Agricultural Experts in Canada. This advice is scientifically and agriculturally correct, and it is good.

The attached coupon makes it convenient for you to send for our "ORCHARD AND GARDEN" booklet. If you will let us know your soil condition, our Scientfic Bureau will tell you, without charge, how best to cultivate your own particular orchard.

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dred boxes. This exhibit was sold to the Robt. Simpson Co., of Toronto, for two dollars fifty cents a box. Halton county also had a three-hundred-box exhibit of Baldwins, but the quality of their fruit and their packing fell a little behind the Northumberland and Durham exhibit, but not much.

A two hundred and twenty-five-box lot of McIntosh came in for much attention. In some ways this was the most attractive exhibit of boxed apples at the fair. This attractiveness, however, was due to the variety. For quality of fruit and correctness of pack the exhibit had to take second place to a one hundred-box lot of Baldwins packed by the Northumberland and Durham Fruit Growers' Association. Mr. R. C. Ferguson, of Grey Co., had a third lot of one hundred boxes on which he secured third place. Another coveted award that fell to the growers of Northumberland and Durham was that for the best box of any variety in the building, they winning on a box of Spies.

DEMONSTRATION ORCHARDS

An exhibit of particular educational value also came from the united counties. This was a showing of boxed apples of many varieties grown in the demonstration orchards in charge of the local department of Agriculture. These apples were of splendid quality from the standpoint of size, color, and freedom from blemishes. Until three years ago the orchards on which they were grown were neglected, producing small crops of fruit and packing as low as thirty per cent. of number ones. The transformation has been effected by proper pruning and spraying, fertilization, and cultivation.

SOME DEFECTIVE PACKING

In single box entries there was much evidence that education is still needed in packing. In Spies, for instance, the best apples exhibited had to go down to last place because the box was only two-thirds full. The same exhibitor made the same mistake in other classes. The most common defect noticed was that the boxes lacked bilge. Fruit so packed does not carry well, and when exposed does not present so attractive an appearance as where the fruit springs up nicely. Prominent among the exhibitors of single boxes were the Northumberland and Durham Fruit Growers' Association; W. L. Hamilton, Collingwood; R. C. Ferguson, Thornbury; Oakville Fruit Growers' Association, Henry C. Bohn, Orono; W. H. Bunting, St. Catharines; P. C. Dempsey, Trenton; Brant Fruit Growers' Association; and several others, too numerous to mention.

Barrels once the feature of the apple show, now form a comparatively unimportant part of the apple exhibit, their number at the recent show not reaching half a hundred. All standard varieties, however, were well represented in the barrel packs, the same exhibitors being prominent as were successful in the box classes.

PLATE EXHIBIT

Plate exhibits were as numerous as in any previous year. Many growers who surrounded the table during the time of judging found it difficult to follow the judge in his awards. In many cases, large, well grown specimens, perfectly free from blemishes and of the proper shape for the variety, had to take second place to the smaller apples, the reason given being that large apples are not wanted on the market. "We are advised to fertilize, cultivate, prune, and spray, to say nothing about thinning, in order that we may grow the best quality of fruit," one grower was

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Have ample storage to hold for improved market.

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Earliness and Productiveness aimed at. We succeeded, and mark you—Grown in Canada.

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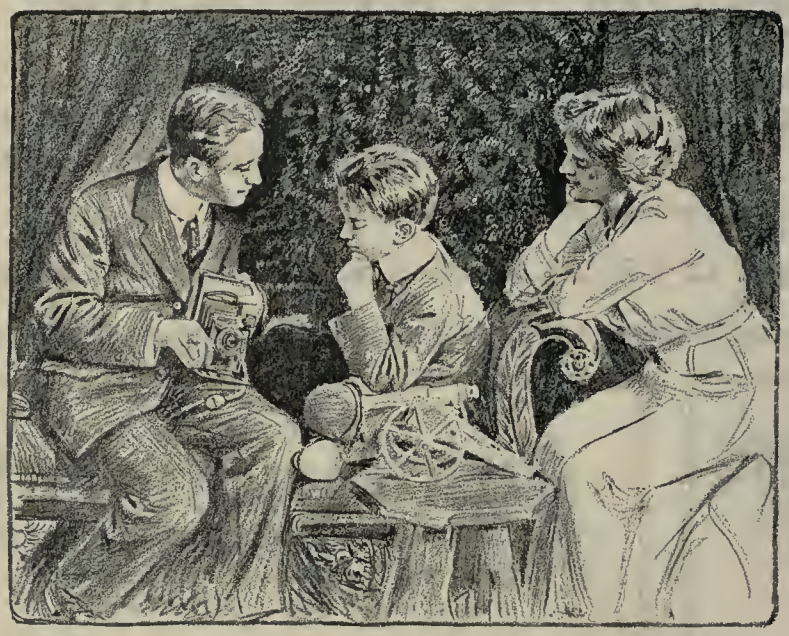

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heard to remark, "and then when we bring our fruit here, we have to take second place to fruit that looks as if it had been grown in a sod orchard." Probably, however, the awards were placed correctly from the standpoint of the requirements of the consumer, as the texture of the medium-sized apple of large growing varieties is generally superior.

Due to the lateness of the season, tender fruits were necessarily a limited exhibit. The territory they represented, however, seemed to be unnecessarily limited, almost every entry coming from the St. Catharines district. There are other sections of Ontario that can grow just as choice pears and grapes as can the St. Catharines district, and they would do well to advertise their possibilities for the production of tender fruit. Exhibitors were G. A. Robertson, F. J. Stewart, R. Thompson, W. J. Furminger, Geo. Goring, Alexander Glass, and W. L. Hamilton.

Mr. P. J. Carey, Dominion Fruit Inspector, with several assistants, gave daily demonstrations on a subject that is very near to his heart—the proper boxing of apples. Mr. Carey's corner of the building was a popular one, and it is to be regretted that bad weather so marred the attendance at the fair that more were not able to take advantage of Mr. Carey's instructive demonstrations. The exhibition was a distinct success, and showed a marked improvement over former years, particularly in the flower and vegetable sections.

Eastern Annapols Valley

Eunice Buchanan

When the shortage of the apple crop was found to be greater than was expected, the growers consoled themselves with the prospect of high prices; but this hope has been dampened by the fact that the apples are not keeping well. The long rainy period in October delayed harvesting roots and fruit until well on in November. During the first week of November, we had severe frosts, so that many apples and potatoes were frozen. This short cold snap has been followed by unusually warm weather, which still continues (November 13), with the result that the apples are decaying in the warehouses, probably owing to a combination of causes—warm weather now, delayed picking, aphis attacks, and summer weather conditions which were conducive to spot. These spots are now sinking and turning to rot, while Ribstons and Blenheims went soft. In some cases of Greenings, the warehousemen refused to pack them.

This has roused the companies to seriously consider a cold storage warehouse at Berwick before next season, as now they are bound down to choose between shipping to glutted markets or letting the fruit deteriorate, a serious situation with which we have not had to contend before.

The first exports to England brought good prices. Early Gravensteins netted the United Fruit Co. members as follows: No. 1, $3.85; No. 2, $2.65; for large spotted No. 2, $2.45; No. 3, $1.00. Blenheims, No. 1, $3.00; No. 2, $2.30; No. 3, $1.00. Boxed Blenheims, $1.03 per box. Dudleys, No. 1, $4.52; No. 2, $3.79. This variety has not many threes; it is not a common apple in this locality, but is recommending itself. Late varieties of apples are attacked by minute black spots, and nearly all kinds seem to be unusually ripe for this time of year.

This Lamp Makes Its own Gas From Coal Oil

The "FAULTLESS" Lamp

Simplest, Strongest, most Beautiful and Perfect Portable Lamp in the World

Cannot Explode

Can Roll it on the Floor while Burning

Requires No Cleaning

Costs Less than One Cent a Night to produce Three Hundred Candle Power of Bright White Light

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MACLAREN & CO., Main St., Merrickville, Ont.

Health worth having

makes life worth living. If you feel run down, with a tendency toward throat and lung troubles growing on you—act quickly and wisely—take

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Tasteless Preparation of

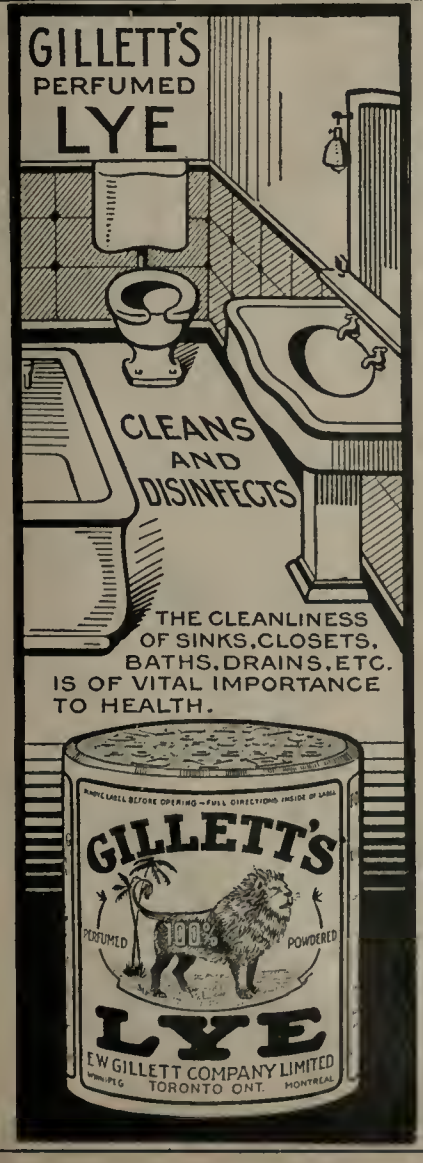
Cod Liver Oil

This is a perfect and pleasant combination of the best Norwegian Cod Liver Oil with Malt Extract, Cherry Bark and Hypophosphites. It restores wasted energies, fortifies the system to resist coughs and colds, and gives that abounding vitality which makes one glad to be alive. As a food-tonic after wasting illness, or for weak, puny children, it has few, if any, equals.

In 50c. and $1.00 bottles—at your Druggist's.

312

National Drug and Chemical Co. of Canada, Limited.



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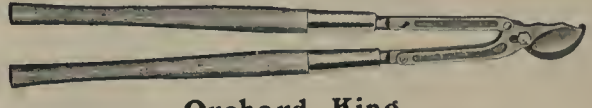
TREE PRUNERS

ALL PATENTED

BEST IN QUALITY
EASY TO OPERATE

THE STRONGEST MADE

Happy Thought



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The Canadian Apple Growers' Guide

The only reliable detailed authority on Apples and Apple Trees, for the Dominion. Price, post paid, $1.50.
Address
Linus Woolverton - Grimsby, Ont.

BLACK CURRANTS

We have some excellent plants of the Black Naples variety, grown from the most productive patch in the district. Also some Lawton Blackberry plants.
Apply for prices.
J. E. HENRY & SON - WINONA, ONT.

Sprayers
Sulfur Dusters

For Fighting Every Disease of Cultivated Plants

Knapsack, Pack Saddle or Horse Drawn Power Sprayers

Send for Catalogues and particulars to: **VERMOREL** Manufacturer, VILLEFRANCHE (Rhone), FRANCE

Ranked at the Very Top

DAVID Rankin was a big farmer and he knew his business. He owned the largest corn farm in the world, about 35,000 acres down in Missouri. He devoted his life to the pleasant study and practice of right farming, and he succeeded mightily, for he made $4,000,000 in the business of farming. This is what David Rankin said about the manure spreader: "It is the most efficient money-maker on the place."

It's warm praise to be ranked above all other farm machines, but it is in keeping with what all the agricultural world has been recognizing. Soils rebel when crop after crop is taken from them, without return of fertilizer. Witness the abandoned, worn-out farms of New England. Return every bit of manure to the soil by the spreader method. The I H C manure spreader will save you much disagreeable, hard labor, will spread evenly, and will make one ton of manure go as far as two tons spread by hand.

I H C Manure Spreaders

Deering and McCormick

are built to suit you, to do best work for the buyer in every case, to convince him that he has made the wisest purchase. Every detail in the construction has a purpose for which it was made after thorough tests and experiment. They have the maximum of strength and endurance, and their construction bristles with advantages.

You will find all styles and sizes in the I H C spreader line. They will cover the ground with a light or heavy coat, as you choose, but always evenly, up hill or down. There are high and low machines, with steel frames, endless or reverse aprons, but always giving best possible service. Tractive power is assured by position of the rear wheels well under the box, carrying nearly three-fourths of the load, and by wide rimmed wheels with Z-shaped lugs.

These and many other things will interest and convince you if you look the I H C spreader line over at the local agent's. There is one for your exact needs. Read the catalogues that the agent has for you.

International Harvester Company of Canada, Ltd

EASTERN BRANCH HOUSES
At Hamilton, Ont.; London, Ont.; Montreal, P. Q.; Ottawa, Ont.; St. John, N. B.; Quebec, P. Q.

Ontario Horticulturists Meet

(Continued from 297)

Dr. F. E. Bennett, the energetic president of the St. Thomas Horticultural Society, which has the largest membership of any society in the province, gave many practical suggestions on the building up of the membership of local societies. His society has held monthly flower shows in store windows in the town. The shows were always held on Saturdays. In this way the public was reached. The following day many of the exhibits were distributed in the hospitals. The society has given each member a rose or a shrub, a dozen bulbs, and a year's subscription to The Canadian Horticulturist. This fall sixteen thousand bulbs were given away and nineteen thousand more imported at cost price. A fuller report of this address will be published later.

OFFICERS ELECTED

The following officers were elected: President, J. H. Bennett, Barrie; first vice-president, Rev. G. W. Tebbs, Orangeville; second vice-president, Dr. F. E. Bennett, St. Thomas; treasurer, C. A. Hesson, St. Catharines; secretary and editor, J. Lockie Wilson, Toronto. Hon. directors: W. T. Macoun, Ottawa, Prof. H. L. Hutt, Guelph; W. B. Burgoyne, St. Catharines. Directors: Dictrict No. 1, F. B. Bowden, Hawkesbury; District No. 2, R. E. Kent, Kingston; District No. 3, Geo. Vickers, Barrie; District No. 4, T. D. Dockray, Toronto; District No. 5, Jas. Ogilvie, Hamilton; District No. 6, T. Cottle, Clinton; District No. 7, R. W. Brooks, Brantford; District No. 8, W. W. Gammage, London; District No. 9, H. J. McKay, Windsor. Auditors: J. S. Moorcroft, Bowmanville, Mrs. R. B. Potts, Hamilton. Representatives to American Civic Association: J. Lockie Wilson, Rev. A. H. Scott, W. B. Burgoyne. Representative to Canadian National Exhibition: W. J. Diamond, Belleville. Committee on Names and Varieties: H. J. Moore, Niagara Falls (chairman); Miss M. E. Blacklock, Toronto; J. Cavers, Oakville; R. Cameron, Toronto; W. Hunt, Guelph, Prof. H. L. Hutt, Guelph; W. T. Macoun, Ottawa; Ed. Mepsted, Ottawa; T. Delworth, Weston; F. E. Buck, Ottawa (secretary).

A Welcome Guide

The attention of the many visitors in the Horticultural Exhibition at Toronto, Ontario, was directed to a fine display of plans for landscape and gardening made by Max Stolpe at Hamilton, Ontario.

This gentleman, ex-superintendent of the Royal Gardening Institute, and possessor of gold and silver medals, has for the last couple of years been engaged in work in this country, and has become one of the foremost landscape architects of Canada. Having practiced his science in Germany, Austria and Switzerland for nearly twenty years, the experience thus gained has made him master of his profession. Landscape architecture is not alone confining itself to the evolution of large deserts and big bushes into a number of well designed parks. It also deals with the beautifying of small gardens, lawns and boulevards, and in this way appeals to every owner of property who is trying to improve his estate and its surroundings by planting trees and flowers and placing or arranging them in such a manner as to become a treat for everybody's eyes and an advantage to the life of the plant itself. His advertisement will be a welcome guide for all those who desire to consult M. Stolpe or engage his services.

Gladioli at Less than Wholesale Prices

AMERICA. the standard pink. 1¼ in. and up in diameter. $1.50 per 100.

TACONIC. Lively pink (perfect). 2 in. up. $4.00 per 100.

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For literature descriptive of this great territory, and for information as to terms, homestead regulations, settlers' rates, etc., write to

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SMALL FRUIT PLANTS

Gooseberries, Joeselyn! Josselyn!! Red Jacket, Downing, Pearl, Honghton.—Currants, Perfection, Perfection!! Ruby, Cherry, White Grape, Lee's Prolific, Champion, Black Naples Victoria. — Raspberries, Herbert! Herbert!! Herbert!!! Cuthbert, Marlboro, Brinckle's Orange, Golden Queen, Strawberry-Raspberry. — Garden Roots, Asparagus, Rhubarb. Write for Catalogue

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Have a Fine Assortment of

Trees, Vines, Plants, Ornamentals, Etc.

For Spring Planting

For Satisfaction, Plant St. Riges, Himalaya and Ever Bearing Barn's

Our prices are right and so are the trees. Send for priced catalogue if you have none, also your want list for special prices on Apple Trees. We can please you.

Look over our Price List No Agents

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The Ideal Farm Power

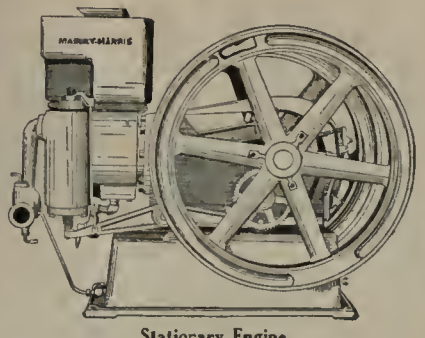
Massey-Harris Gasoline Engines are always ready in all kinds of weather, winter or summer, and they not only develop their full rated horse power, but they do it on the least possible consumption of gasoline—for every gallon of gasoline you use, the Engine gives all the power the gasoline is capable of developing.

Their high efficiency, coupled with their economy of operation and durability, combine to make Massey-Harris Engines, without exception, the most reliable and satisfactory on the market to-day.

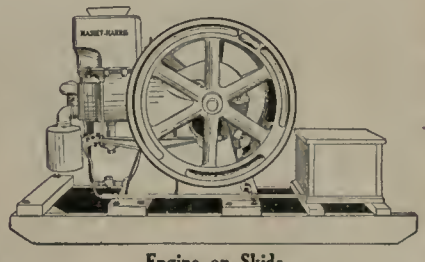
1½ to 20 horse-power.

Hopper Jacket or Closed Jacket.

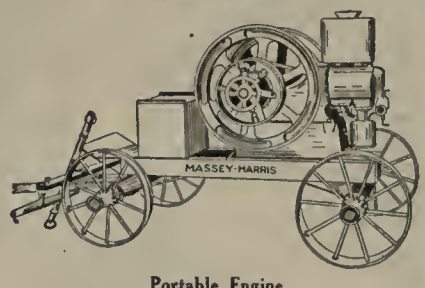
Direct-Connected Pumps, Spray Outfits, Saw Outfits, Pump Jacks, Governor Pulleys, etc.



Stationary Engine



Engine on Skids



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SUNLIGHT GREENHOUSES

Good flowers cannot be grown in a barn, why not get something up-to-date, something strong and durable. OUR METHODS of construction are thoroughly tested before they are placed on the market, and are not a lot of small pieces added to an old type of construction, for the purpose of making it appear modern. We go at it the correct way and find out what is necessary in the beginning. These little added pieces cause confusion when the erecting is in progress.

IT IS WELL TO KNOW

That you are safe under a glass roof that will stand the test and produce both quality and quantity.

We Design and Manufacture these in

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"FRIEND" Sprayers

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Mr. Fruit Grower

You have heard of the celebrated

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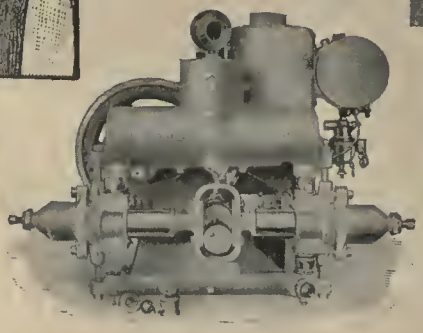
But you have not heard of the 1914 MODELS.

Western King and Queen

If you have a power sprayer, EXCHANGE engine and pump for our POWERFUL UNIT MOTOR-PUMP and PROPELLER AGITATOR, or sell it and buy a whole new outfit. "FRIEND" outfits are now made in many styles, TO SUIT YOUR TASTE, including motor-pumps, outfits on bed without trucks, and complete machines — built in large and small sizes. The SIMPLEST, MOST COMPACT, MOST POWERFUL and FINEST WORKING power sprayers ever produced. Many Westerns sold in Canada last year to growers who are STAUNCH FRIENDS this year.

Western Queen



The "Friend" Motor-Pump

WRITE FOR CATALOG TO-DAY, STATING REQUIREMENTS.

"FRIEND" MFG. CO., GASPORT, NEW YORK

Ontario Fruit Growers

At the recent convention of The Ontario Fruit Growers' Association, the plum industry generally was described as a hit and miss business by Mr. F. M. Clement, of Macdonald College. Where good varieties are planted, Mr. Clement believes that fair profits may still be made from plums. Mr. S. C. Parker, of Berwick, N.S., sketched the history of the organization of the great fruit company of that province, and told of the benefits being derived by the growers. Mrs. L. A. Hamilton, of Lorne Park, told of how she had induced city girls to visit the country during fruit picking and thus help the growers in the solution of one of their most difficult problems. Mr. L. D. Henry, of Winona, dealt exhaustively witb the growing and marketing of bush fruits. Prof. J. W. Crow, who took the place of Mr. W. H. Bunting, in discussing "Strawberry Cul-

(Continued on page viii)

COUNTRY HOME

12 acres, near town on Lake Huron, with fine lot ornamental trees surrounding dwelling, which contains 8 rooms. There is a bearing apple orchard with good variety of fruit. Good water supply. All conveniences in the town in the way of schools, churches, etc. Price, twelve hundred and fifty dollars. Reasonable terms.

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We are Headquarters in Canada for These Lines

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Manufacturers of Sprayers and a complete line of

Apple Evaporating Machinery

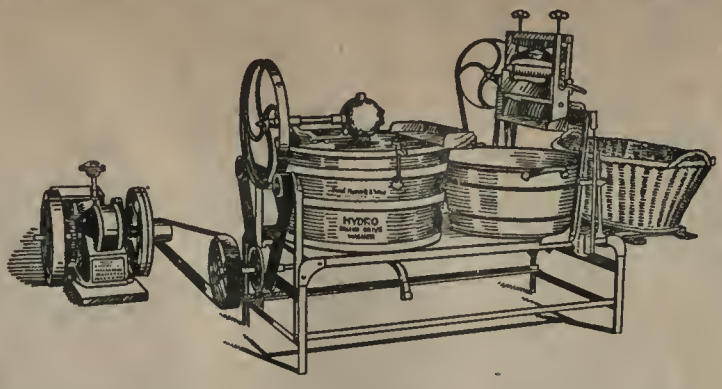
Installing Power Evaporators a specialty

OUR LEADERS

Ontario Power Sprayer
Model 2-B, and the
Improved Pacific Apple Parer

Write for catalogue on Spraying and Evaporating

Let the Gas Engine help your wife to do her washing



HAS it occurred to you that your other business partner—your good wife—is still using the out-of-date, back-aching methods of years ago—wearing herself out with the drudgery of the old-fashioned washday? If you have a gas engine on your farm you need a

Maxwell

"HYDRO" BENCH WASHER

That little 1¾ H.P. gas engine that works your churn and cream separator and operates your Pump Jack, Root Pulper and other small implements, will do the clothes washing and wringing for your wife—and do it quickly and satisfactorily. This **Maxwell "Hydro" Power Bench Washer** works equally well by gas power or by electricity, and can be driven by a one-sixth H.P. motor. We make it in one, two and three tub machines, and the mechanism is as perfect as science can invent.

One of these machines would be a genuine boon to your wife when washday comes round. Make her a present of one—and let your gas or electric power help her to do **her** part of the work and lighten the burden of washday!

Write to-day for further particulars of this Maxwell "Hydro" Power Bench Washer.

DAVID MAXWELL & SONS, DEPT. "H" ST. MARY'S, ONT. 11

Consolidated Greenhouse Glass Gives Absolute Satisfaction

We guarantee it to be of perfect quality, of even thickness, cut true and minus the imperfections common to European greenhouse glass.

We ship promptly. Orders for import delivered within two or three weeks—every order guaranteed delivery within one month

Consolidated Greenhouse Glass is shipped in boxes containing 100 ft. in standard greenhouse sizes.

Write to us to-day for quotations. We'll answer promptly and you will be well satisfied with every detail of your transactions with us.

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Use the best Manure and get

GOOD CROPS

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Makes poor land fertile and keeps fertile land most productive.

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Saddles	$3.00 up	New Uniforms	$1.00 up
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Team Harness	21.85 "	Rptg. Rifles	1.48 "
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Tents	2.20 "	7 Shot Carbines	2.95 "
Colts Cal. 45, Revolvers	7.50 up.	Cartridges	1c each
Sp'field Mauser Sp't'g Rifle	11.85.	Cartridges	2c each
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A book of 96 pages, fully illustrated. Game Laws revised to date—tells you how, when and where to trap, bait and traps to use, and many other valuable facts concerning the Raw Fur Industry, also our "Up-to-the-minute" fur quotations, sent ABSOLUTELY FREE for the asking. 489

Sixty Thousand trappers send us their Raw Furs. Why not you? We pay highest prices and express charges, charge no commission and send money same day goods are received. Millions of dollars are paid trappers each year. Deal with a reliable house. We are the largest in our line in Canada. Write to-day

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And overtime when needed. Anyone can afford him, for he only costs $3.00 to buy and nothing at all to keep. Nearly half of the families in Canada have taken advantage of this and have employed him to get the family up in the morning.

Even if you have a preference about waking up, he's ready to get you up your way. If you like to be wakened gradually, he'll ring little short rings every other half-minute for ten minutes. If you're a hard sleeper and need a strong dose, he'll sing out with a long, vigorous, full five-minute ring. Either way, you can shut him off at any point.

7,000 Canadian dealers are necessary to take care of the demand he's created for himself. He's made a world's Record as a success.

He's invaluable on the farm, because he not only helps you get the hands out on time, but serves as a first-class clock to tell the *day* time by.

He stands 7 inches tall, is triple nickel-plated—has a vest of good implement steel that keeps him hardy; large, bold figures and hands to tell the time by in the dim light of morning. He is as fit for the parlor as the bedroom.

If your dealer hasn't him, send a money order for $3.00 to *Westclox*, *La Salle, Ill.*, and he'll come anywhere in Canada by parcel post, duty charges paid.

He bears the imprint, *Made in La Salle, Illinois, by Westclox*, which is the best alarm clock insurance you can buy.

Ontario Fruit Growers

(Continued from page 308)

ture," spoke strongly in favor of irrigation. As all of these addresses not dealt with in this issue will be given more or less fully in future issues of The Canadian Horticulturist, further mention is not needed here.

The financial statement showed total receipts of five thousand five hundred and thirty-three dollars twenty-two cents, with a balance on hand of one thousand six hundred and seventy-four dollars forty-three cents. Directors were elected for the following year as follow: R. B. Whyte, Ottawa; C. W. Beaven, Prescott; P. S. Wallbridge, Belleville; Elmer Lick, Oshawa; W. J. Bragg, Bowmanville; H. G. Foster, Burlington; R. H. Dewar, R. Thompson, St. Catharines; George Schuyler; D. Grant; J. Mallough; C. W. Gurney, Paris; and W. J. Saunders, East Lynne. Prof. J. W. Crow continues to represent the Ontario Agricultural College.

Mr. J. A. Ruddick, who was also present, asked that representatives be appointed to the Fourth Dominion Fruit Conference, which it is proposed to hold during the summer in one of the fruit districts. The following representatives were appointed: F. S. Wallbridge, Belleville; Walter Dempsey, Trenton; G. W. Grierson, Oshawa; A. Onslow, Niagara-on-the-Lake; C. W. Gurney, Paris; A. E. Kimmins, Winona; A. W. Peart, Burlington; D. Johnson, Forest; and Robt. Thompson, St. Catharines.

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Give Bezzo's Famous Prize Aster Plants as premiums next spring. Prizes at New York State Fair, 1910-11; Canadian National Exhibition, 1912. Highest awards at Berlin Horticultural Society Exhibitions, 1911-12-13. Write for prices.

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RENOWNED

PLANTS & SEEDS

SPECIAL RATES TO CANADIAN NURSERYMEN

NO AGENTS

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